



Asia-Pacific
Economic Cooperation

Advancing
Free Trade for Asia-Pacific
Prosperity

Observation on Harmonization

-- Relation between the harmonization of vehicle regulations and international trade issues

24 04 2018 – Seoul

Presented by

Simon HSU, Vehicle Safety Certification Center, Chinese Taipei

CONTENTS



Asia-Pacific
Economic Cooperation

- Benefits of Harmonization
- Scenarios with Full-care / Semi-care/No-care
- Examples of “without care” (ie. No care)
- Into the Magic Box under “without care”
- Harmonization under “without care”
- Potential Problems
- Harmonization With Care

Benefits of Harmonization 1/2



Asia-Pacific
Economic Cooperation

Source: JASIC (2017.11)

基準調和及び認証の相互承認のメリット

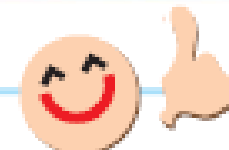
Advantages of Harmonization of Regulations and Mutual Recognition of Approval

メーカー Manufacturers

- 開発の効率化、生産性の向上
Efficient development process and enhanced productivity
- 部品の共通化
Uniform component specifications
- 相互承認項目拡大に伴う承認取得の効率化
Efficient process of obtaining approval by increasing the items subject to mutual recognition
- 部品管理の効率化
Efficient inventory management of parts



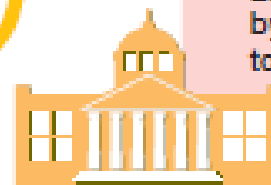
ユーザー Users



- より安全で環境にやさしい自動車の普及
Popularization of safer and environment-friendly automobiles
- 自動車の価格の低減
Lower vehicle prices
- 輸入車の選択肢の拡大
Wider choice of imported cars

行政 Administration

- 基準作成の効率化
Efficient process of developing regulations
- 相互承認項目拡大に伴う審査作業の効率化
Efficient process of examination by increasing the items subject to mutual recognition
- 国際流通の円滑化
Smoother international distribution



Benefits of Harmonization 2/2



Advantages of harmonizing regulations

Source: JASIC (2017.11)

- commonization of parts
- reduced development and production costs
- the standardization of vehicle design specifications
- easier and simplified certification procedures of each country
- expanding the market and giving users a wider range of choices
- streamlining automobile trade between economies

Scenario 1/3 - with full-care



Asia-Pacific
Economic Cooperation



Scenario 2/3 - with semi-care



Asia-Pacific
Economic Cooperation



Scenario 3/3 - without care



Asia-Pacific
Economic Cooperation





Case Study

- #1. DRL is OFF in DRIVING condition
(Speed >10 km/hr)
- #2. DRL is replaced by Front Position Lamp
(Speed >10 km/hr)
- #3. Headlamp Automation is OFF in the ambient
with low light intensity **less than 1000 lux** (such
as in tunnel, at dusk) (Speed >10 km/hr)



Case Study #1

#1. DRL is OFF in DRIVING condition

(Speed >10 km/hr)

#2. DRL is replaced by Front Position Lamp

(Speed >10 km/hr)

#3. Headlamp Automation is OFF in the ambient with low light intensity less than 1000 lux (such as in tunnel, at dusk) (Speed >10 km/hr)

Examples of “without care” 3/12



Asia-Pacific
Economic Cooperation

#1. DRL is OFF in DRIVING condition (Speed >10 km/hr)

According to UN Regulation 48, DRL should remain on except for the following situations: (Source: MLIT, Japan)

- Vehicle speed does not exceed 10km/h. (paragraph 6.19.7.2.)
- Engine (propulsion system) is impossible to operate (paragraph 6.19.7.3.)
- Front fog lamps or headlamps are switched ON (paragraph 6.19.7.3.)
- Direction indicators operate, provided that front indicators are reciprocally incorporated with DRLs or the distance between both lamps is less than 40mm.

(paragraph 6.19.7.5. and 6.19.7.6.)



In case that vehicle speed exceeds 10km/h, there is no legal basis that the DRLs can be switched OFF when only the front position lamps are switched ON.

Examples of “without care” 4/12



Asia-Pacific
Economic Cooperation

#1. DRL is OFF in DRIVING condition (Speed >10 km/hr)



EUROPEAN COMMISSION

Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

Industrial Transformation and Advanced Value Chains

Automotive and Mobility Industries

Head of Unit

Brussels, 09. 03. 2018

GROW/C4/IK/cdp (2018)1411002

Q1. Should daytime running lamps (DRL) be always on automatically from the moment the vehicle is in motion (under any lighting mode)?

Yes, provided that a contracting party (e.g. EU Member States, Japan, etc.) applies DRL regulation requirements (UN Regulation 87).

More specifically, 06 series of UN R48 provides:

6.19.7.1. The daytime running lamps shall be switched ON automatically when the device which starts and/or stops the engine (propulsion system) is set in a position which makes it possible for the engine (propulsion system) to operate. However, the daytime running lamps may remain OFF while the following conditions exist:

6.19.7.1.1. The automatic transmission control is in the park position; or

6.19.7.1.2. The parking brake is in the applied position; or

6.19.7.1.3. Prior to the vehicle being set in motion for the first time after each manual activation of the propulsion system

Examples of “without care” 5/12



Asia-Pacific
Economic Cooperation

#1. DRL is OFF in DRIVING condition (Speed >10 km/hr)

Mandatory installment of a Daytime Running Lamp (DRL) for all vehicles

Source: 2015 KOREA GOVERNMENT STATUS REPORT

After the introduction of DRL in 2010, installment of DRL was initially optional and became mandatory in June 2014.

The mandatory use of DRL is based on results of studies that suggest the positive impact of DRL on ensuring the field of visions of drivers and road users under foggy, rainy, dusty and other adverse weather conditions during daytime as well as in the evening and at dawn. A study shows that mandatory installation of DRL would reduce the regional traffic accidents by 19% in average, suggesting an expectative traffic-accident prevention effect [3].

Regulations for Performance and Safety Standards of Motor Vehicle and Vehicle Parts⁴

[Table 6-8] Requirements for installation and luminous intensity of Daytime Running Lamp (Article 38-4 Item 3, Article 75-2 Item 3)⁴

1. Installation requirements of DRL⁴

E. Operation requirements⁴

1) The DRL shall be switched on automatically when the engine is started. However, the daytime running lamps may remain OFF while the following conditions exist.⁴

a) The automatic transmission control is in the park position; or⁴

b) The parking brake is in the applied position; or⁴

c) Prior to the vehicle being set in motion for the first time after engine on.⁴

2) The DRL shall be switched off automatically when headlamps or front fog lamps are switched on, except that the DRL is used momentarily for the purpose of warning.⁴



Case Study #2

#1. DRL is OFF in DRIVING condition
(Speed >10 km/hr)

#2. DRL is replaced by Front Position Lamp
(Speed >10 km/hr)

#3. Headlamp Automation is OFF in the ambient
with low light intensity less than 1000 lux (such
as in tunnel, at dusk) (Speed >10 km/hr)

Examples of “without care” 7/12



Asia-Pacific
Economic Cooperation

#2. DRL is replaced by Front Position Lamp (Speed >10 km/hr)

Comparison of Intensity between DRL and Front Position Lamp

	DRL UNR87	Front Position Lamp UNR 7
Luminous Intensity in the reference axis	Min 400 cd	Max 140 cd
Light Distribution	<p>A light distribution diagram for DRL UNR87. The vertical axis represents the angle from the vertical (V) in degrees, with markings at 20°, 10°, 5°, V, 5°, 10°, and 20°. The horizontal axis represents the angle from the vertical in degrees, with markings at 20°, 10°, 5°, V, 5°, 10°, and 20°. The diagram shows a beam width of 10 degrees. The intensity values are: 10 at 20° vertical, 20 at 10° vertical, 70 at 5° vertical, 100 at V, 70 at 5° vertical, 20 at 10° vertical, and 10 at 20° vertical. The values 25, 70, 90, 100, 90, 70, and 25 are also shown at the 0° vertical position.</p>	<p>2. Table of standard light distribution</p> <p>A table of standard light distribution for Front Position Lamp UNR 7. The vertical axis represents the angle from the vertical (V) in degrees, with markings at 10°, 5°, 0°, 5°, and 10°. The horizontal axis represents the angle from the vertical in degrees, with markings at 20°, 10°, 5°, 0°, 5°, 10°, and 20°. The diagram shows a beam width of 10 degrees. The intensity values are: 20 at 10° vertical, 70 at 5° vertical, 100 at 0° vertical, 70 at 5° vertical, and 20 at 10° vertical. The values 10, 20, 35, 90, 35, 20, and 10 are also shown at the 0° vertical position.</p>



Case Study #3

#1. DRL is OFF in DRIVING condition

(Speed >10 km/hr)

#2. DRL is replaced by Front Position Lamp

(Speed >10 km/hr)

#3. Headlamp Automation is OFF in the ambient with low light intensity **less than 1000 lux** (such as in tunnel, at dusk) (**Speed >10 km/hr**)

Examples of “without care” 9/12



Asia-Pacific
Economic Cooperation

#3. Headlamp Automation is OFF in the ambient with low light intensity less than 1000 lux (such as in tunnel, at dusk)

**What UN
Regulation 48
says ...**

- 6.2.7.6. If daytime running lamps are present and operate according to paragraph 6.19., either
- 6.2.7.6.1. The dipped-beam headlamps shall be switched ON and OFF automatically relative to the ambient light conditions (e.g. switch ON during night time driving conditions, tunnels, etc.) according to the requirements of Annex 13;

Annex 13

Automatic switching conditions dipped-beam headlamps

<i>Automatic switching conditions dipped-beam headlamps¹</i>		
Ambient light outside the vehicle ²	Dipped-beam headlamps	Response time
less than 1,000 lux	ON	no more than 2 seconds
between 1,000 lux and 7,000 lux	at manufacturer's discretion	at manufacturer's discretion
more than 7,000 lux	OFF	more than 5 seconds, but no more than 300 seconds

Examples of “without care” 10/12



Asia-Pacific
Economic Cooperation

#3. Headlamp Automation is OFF in the ambient with low light intensity less than 1000 lux (such as in tunnel, at dusk)

すれ違い用前照灯（ロービーム）について、以下の要件に従って、周囲の明るさ（照度）に応じ、自動的に点灯及び消灯する機能を有さなければならないこととします（※1）。また、このうち、自動点灯に係る機能については、手動による解除ができないものでなければならないこととします。

※1 走行用前照灯又は前部霧灯を点灯している場合及び自動車が駐停車状態にある場合等を除く。

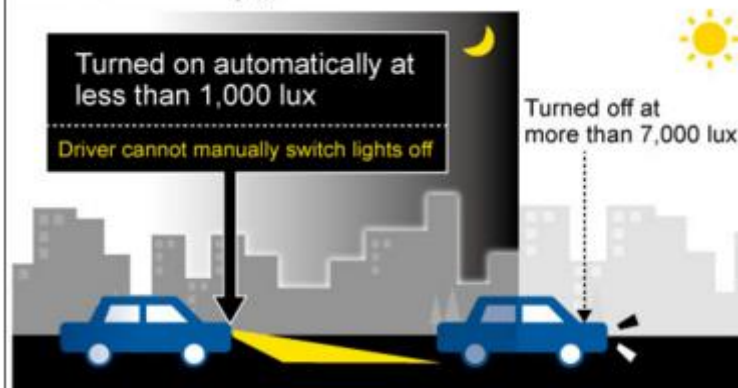
すれ違い用前照灯の自動点灯及び消灯に関する要件（※2）

周囲の照度	すれ違い用前照灯	応答時間
1,000lx 未満	点灯する	2秒以内
1,000lx 以上 7,000lx 以下	—（※3）	—（※3）
7,000lx 超	消灯する	5秒超 300秒以内

※2 「灯火器の取付けに係る協定規則（第48号）」におけるすれ違い用前照灯の自動点灯及び消灯機能と同等の要件

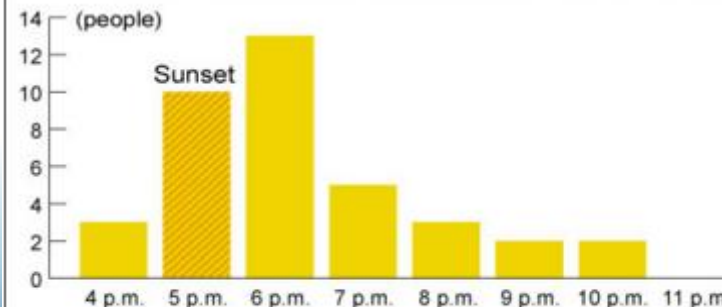
※3 自動車製作者の定めるところによる。

How automatic headlights will work under ministry plan



Number of elderly people killed in car accidents

(Source: Transport ministry
Note: The figures represent the number of people aged 65 or older killed in traffic accidents in September 2014.)



Examples of “without care” 11/12



Asia-Pacific
Economic Cooperation

#3. Headlamp Automation is OFF in the ambient with low light intensity less than 1000 lux (such as in tunnel, at dusk)



EUROPEAN COMMISSION

Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

Industrial Transformation and Advanced Value Chains

Automotive and Mobility Industries

Head of Unit

Brussels, 09. 03. 2018

GROW/C4/IK/cdp (2018)1411002

Q3. Follow the item two. If the car has equipped manual select automatic switching light function and the automatic switching comply with Annex 13 automatic switching conditions dipped-beam headlamps requirement. Does it also compliance the UN R48 6.2.7.6.1 paragraph requirement “switched ON and OFF automatically?”

Yes, despite the fact that the car is equipped with manual switching light function (i.e. light switch control position that switches OFF dipped-beam headlamps), the dipped-beam headlamps should be switched ON automatically at least again when the ambient light outside is less than 1000 lux (According to Annex 13).

Examples of “without care” 12/12



Asia-Pacific
Economic Cooperation

#3. Headlamp Automation is OFF in the ambient with low light intensity less than 1000 lux (such as in tunnel, at dusk)

Daytime Running Lamp	Passing-beam Headlamp
<p>A nighttime view of a car's front end. The headlights are off, but the daytime running lamps (DRLs) are illuminated, appearing as two bright white spots. The text '昼行燈' (DRL) is visible in the top left corner.</p>	<p>A nighttime view of a car's front end. The headlights are on, creating a wide, bright beam of light that illuminates the road ahead. The text '近光頭燈+車寬燈' (Passing-beam headlights + side marker lights) is visible in the top left corner.</p>
<p>DRL creates Glare to the driver's eye in the upcoming vehicle</p>	
<p>A view from inside a tunnel. The lighting is dim, and the DRLs of an approaching vehicle are visible as bright spots. The text '昼行燈' (DRL) is visible in the top left corner.</p>	<p>A view from inside a tunnel. The lighting is dim, and the passing-beam headlights of an approaching vehicle are visible, illuminating the road ahead. The text '近光頭燈+車寬燈' (Passing-beam headlights + side marker lights) is visible in the top left corner.</p>
<p>DRL emits Much Less Intensity for vision illumination</p>	

Example of Scenario 3/3 - without care



Asia-Pacific
Economic Cooperation

What's getting INTO
the Magic Box



Harmonization

Magic BOX



What's getting OUT
OF the Magic Box



- #1. DRL is OFF in DRIVING condition (Speed >10 km/hr)
- And/Or #2. DRL is replaced by Front Position Lamp
- And/Or #3. Headlamp Automation is OFF in the ambient with low light intensity (such as in tunnel, at dusk)

- #1. DRL is OFF in DRIVING condition (Speed >10 km/hr)
- And/Or #2. DRL is replaced by Front Position Lamp
- And/Or #3. Headlamp Automation is OFF in the ambient with low light intensity (such as in tunnel, at dusk)

Example of Scenario 3/3 - without care



Asia-Pacific
Economic Cooperation

What's getting INTO
the Magic Box

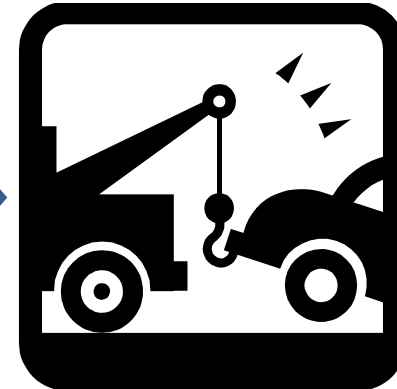


Harmonization

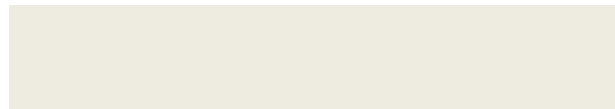
Magic BOX



What's getting OUT
OF the Magic Box



- #1. DRL is OFF in DRIVING condition (Speed >10 km/hr)
- And/Or #2. DRL is replaced by Front Position Lamp
- And/Or #3. Headlamp Automation is OFF in the ambient with low light intensity (such as in tunnel, at dusk)



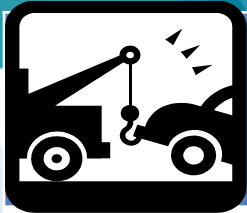
- #1. DRL is OFF in DRIVING condition (Speed >10 km/hr)
- And/Or #2. DRL is replaced by Front Position Lamp
- And/Or #3. Headlamp Automation is OFF in the ambient with low light intensity (such as in tunnel, at dusk)

Into the Magic Box

Under “without care” 1/4



Asia-Pacific
Economic Cooperation



Switch Control

Dipped Beam Headlamp



Dipped Beam Headlamp ON (DRL OFF)



1. **ON Position Lamp or DIMMED Daytime Running Lamp** to be declared as a Position Lamp
2. ie. **DRL remains OFF** even Speed > 10kph
And Without AUTOMATIC Dipped Beam Headlamp ON/OFF



OFF

1. **Some DRL remain ON or Some remain OFF** when Speed > 10kph
2. **BUT Still Without AUTOMATIC Dipped Beam Headlamp ON/OFF**

AUTO

AUTOMATIC Daytime Running Lamp ON/OFF
With AUTOMATIC Dipped Beam Headlamp ON/OFF

...M...
...N...
...H...
...T...

Into the Magic Box Under “without care” 2/4



Asia-Pacific
Economic Cooperation



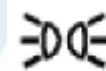
Switch Control

Dipped Beam Headlamp



Dipped Beam Headlamp ON (DRL OFF)

...M...
...N...
...H...
...T...



1. **ON Position Lamp**
Or DIMMED Daytime Running Lamp to be declared as a Position Lamp
2. ie. **DRL remains OFF** even Speed > 10kph
And Without AUTOMATIC Dipped Beam Headlamp ON/OFF

AUTO

AUTOMATIC Daytime Running Lamp ON/OFF
With AUTOMATIC Dipped Beam Headlamp ON/OFF

Into the Magic Box Under “without care” 3/4

#1. DRL is OFF in DRIVING condition (Speed >10 km/hr)

#2. DRL is replaced by Front Position Lamp (Speed >10 km/hr)

However, There's **no details in Test Reports** about How DRL/Headlamp Automation operate to fulfill the Technical Regulation

UNR48 – Test Report by Technical Services such as ...

2.2.19	Daytime running lamps	
	Number	: 2
	Tell-tale	: no

**Test Report 1 – Couldn't tell from
Only these 2 paragraphs**

3.2.19 Daytime running lamps:

Test Report 2 – no description on How to judge

The vehicle is equipped with the daytime running lamps listed in item 13.10.1 of Annex MID.
The lamps fitted are approved according to the ECE Regulation No. 87. The approval numbers can be found in item 13.10.1 of Annex MID.
The requirements of item 6.19. of the ECE Regulation No. 48 are fulfilled.

Film_Daytime [Day 03:06 PostionON_DRLOff](#)

At 03:06, Switch to “Position Lamp” position, then DRL Off.

When driving speed > 10kph, Check DRL which still remains OFF.

Into the Magic Box

Under “without care” 4/4

#3. Headlamp Automation is OFF in the ambient with low light intensity **less than 1000 lux** (such as in tunnel, at dusk)

However, There’s **no details in Test Reports** about How DRL/Headlamp Automation operate to fulfill the Technical Regulation

UNR48 – Test Report by Technical Services such as ...

Test Report 3 – but Only “AUTO” position fulfills the requirements

(R48.05 on)	Where DRLs are present and operate to para. 6.19, either:	
Required for new M1/N1 approvals from 30/07/2016 (see Para 12.22)	The dipped-beam headlamps shall be switched ON and OFF automatically relative to the ambient light conditions (e.g. switch ON during night time driving conditions, tunnels, etc.) according to the requirements of Annex 13	Yes

Film_Nighttime [Night 26th sec PositionOn_DRLOff_AutomationHeadlampOFF](#)

At 26th sec, Switch to “Position Lamp” position , then DRL Off and AutomationHeadlamp OFF

When driving speed > 10kph, Check Headlamp which still remains OFF.

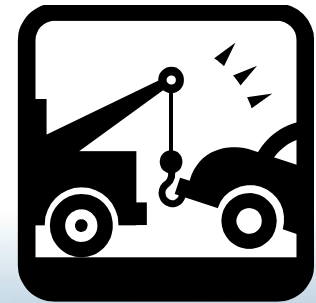
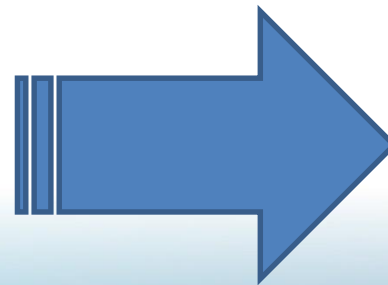
Harmonization under “without care”

The Relation/Connection in Harmonization would break :

Harm ⚡ ON ⚡ ization

which is

Harm On Making Real



Why Bother Harmonization



Asia-Pacific
Economic Cooperation

Source: JASIC (2017.11)

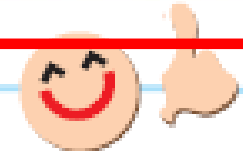
基準調和及び認証の相互承認のメリット Advantages of Harmonization of Regulations and Mutual Recognition of Approval

メーカー Manufacturers

- 開発の効率化、生産性の向上
Efficient development process and enhanced productivity
- 部品の共通化
Uniform component specifications
- 相互承認項目拡大に伴う承認取得の効率化
Efficient process of obtaining approval by increasing the items subject to mutual recognition
- 部品管理の効率化
Efficient inventory management of parts



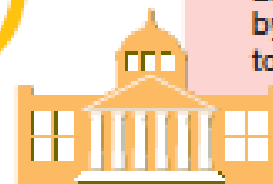
ユーザー Users



- より安全で環境にやさしい自動車の普及
Popularization of safer and environment-friendly automobiles
- 自動車の価格の低減
Lower vehicle prices
- 輸入車の選択肢の拡大
Wider choice of imported cars

行政 Administration

- 基準作成の効率化
Efficient process of developing regulations
- 相互承認項目拡大に伴う審査作業の効率化
Efficient process of examination by increasing the items subject to mutual recognition
- 国際流通の円滑化
Smoother international distribution



Potential Problems

DisAdvantages of harmonizing regulations

- commonization of parts
- reduced development and production costs
- the standardization of vehicle design specifications
- easier and simplified certification procedures of each country
- expanding the market and giving users a wider range of choices
- streamlining automobile trade between economies

Harmonization “With Care”



Asia-Pacific
Economic Cooperation



Care

Let's enjoy advantages of harmonization by making it right TOGETHER for PEOPLE. The opposite is true as well.



Asia-Pacific
Economic Cooperation



Thank you for your attention!

謝謝您的關注