



Ford Motor Company

Subsystem Part Specific Specification

Engineering Specification



Research & Vehicle Technology
“Infotainment Systems Product Development”

Feature – Illumination Management

**APIM Infotainment Subsystem Part Specific
Specification (SPSS)**

Version 1.0

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Version Date: May 31st, 2013

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Table of Contents

Revision History	2
1.1 Functional Definition	4
1.1.1 ILLMGNT-GFUN-293948-1-Day/Night Mode	4
1.2 Appendix: Reference Documents.....	6



1.1 Functional Definition

1.1.1 ILLMGNT-GFUN-293948-1-Day/Night Mode

1.1.1.1 Requirements

ILLMGNT-GREQ-293947-1-Scope of Day/Night Mode (HMI) -

only colours/textures Sshall change. Screen elements shall not move around or change size , nor even drastically change “appearance.” The intended effect is similar to turning on the lights in a dim room, or a city skyline photographed during the day and at night; everything looks the “same,” just lighter or darker, or more/less illuminated or similar idea.



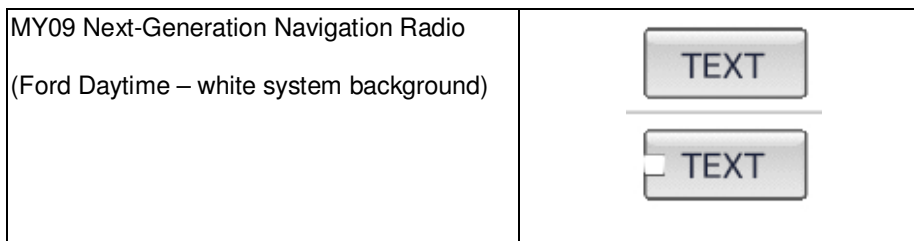
Photo copyright James MacLennan. All rights reserved

ILLMGNT-GREQ-293949-1-Affected Graphics (HMI) -

In order to accomplish this, all graphics will be affected and must be CAPABLE of change:

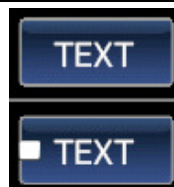
- System bezels and corner tabs
- System background (this will drive the need for the rest to change)
- Text
- Common component graphics
- Static page graphics

Fig. 1 Example day/night buttons from A21 GUI Design Standards. Note how system background, text and graphics all change





MY09 Next-Generation Navigation Radio
(Ford Nighttime – black system background)



ILLMGNT-GREQ-293951-1-Day/Night vs. Themes (HMI) -

Day/Night is NOT the same thing as a theme. Day/night are sub-themes. i.e. every theme has a day and night variant. The implementation (of day/night and themes) may or may not be similar. The biggest difference requirements-wise is that Day/Night mode MUST switch on-the-fly within strict timing limits. By contrast, theme changes may involve re-starting the HMI if an on-the-fly theme-change solution is unacceptable.

ILLMGNT-GREQ-293957-1-Change shall occur on-the-fly (Performance) -

Day/night graphics changes shall occur on-the-fly on the currently visible screen.

ILLMGNT-GREQ-293958-1-Visible screens shall change first (Performance) -

For fastest response time, if multiple screens are resident in memory, the visible screen(s) shall be changed first.

ILLMGNT-GREQ-293968-1-All graphics shall change simultaneously (HMI) -

All graphics visible on the display shall change simultaneously. Note this does NOT mean “instantaneously”. A subtle animation between day/night is desirable (fade-through or similar).

ILLMGNT-GREQ-293970-1-All graphics shall be capable of day and night variants (HMI) -

All graphics shall be capable of day and night variants, but the system shall not *force* both variants to exist in all cases.

ILLMGNT-GREQ-294008-1-Use Single graphic as much as possible (HMI) -

As much as possible, a single graphic shall be designed to work for both day/night variants, for example by adding a dark stroke around light-coloured graphics that outlines it on light day background but largely disappears against the dark night background, leaving the light-coloured graphic clearly visible against the dark night background. Individual day/night variants shall be used only where this cannot be achieved in an aesthetically pleasing way.

ILLMGNT-GREQ-294010-1-Single graphics and day/night variants coexist (HMI) -

Day/night and non-varying graphics can coexist anywhere in any combination and differently per theme (i.e. any individual graphic can have a day/night variant in one theme but in another, consist of a single graphic that works in both modes or vice-versa).

ILLMGNT-GREQ-294011-1-Code abstraction (HMI) -

Code and graphic structures that executes the day/night change shall be abstracted into the HMI framework, base classes, widgets, graphic libraries and as few standard graphical implementations as possible. This shall be done in such a way as to allow the system to still differentiate between (the day/night graphics contained in) views visible on screen and those which may exist in memory but are not currently visible to the user.



1.2 Appendix: Reference Documents

Reference #	Document Title
1	CGEA 1.3 Illumination specification(s)
2	CGEA 1.2 Illumination specification(s)
3	C1MCA Illumination Specification(s)
4	
5	
6	
7	
8	
9	
10	
11	