

**JAMA** ( [Japan Automobile Manufactures Association](#) )  
**AMA Guideline for In-vehicle Display Systems** - Version 2.1  
[February 22, 2000](#)

## 1. Scope

Applies to in-vehicle display systems ( ~~factory plant~~-installed and dealer-installed designated by, ~~or designed by automobile manufactures~~ ), ~~auto maker~~ installed in vehicle ( ~~and dealer-installed installed in vehicle~~ (excluding 2-wheeled vehicle) ) and visible to driver.

## 2. Effective Date

- (1) Paragraph 3: Display location: applies to the following vehicles in which in-vehicle display system is installed.
  - Full model change vehicles, including newly developed models, for which a type approval application is submitted on or after January 1<sup>st</sup>, 2003. ~~including newly developed models~~.
  - Vehicles for which new model, excluding full model change, or structural ~~change request is made~~ modification application is submitted on or after January 1<sup>st</sup>, 2007.
- (2) Paragraphs 4 ~ 7: Display requirement, operational requirement, software and definitions apply to the following ~~image display equipment~~ in-vehicle display systems.
  - Factory-installed ~~equipment system~~: ~~newly developed or changed~~ and designated by automobile manufactures on or after January 1<sup>st</sup>, 2000.
  - Dealer-installed system equipment established by automaker, ~~newly developed or changed and designated by automobile manufactures~~ on or after January 1<sup>st</sup>, 2002.
- (3) For ~~image display equipment~~ in-vehicle display systems falling outside the above definitions, pre-revision guidelines (SAEJ ~~Publication~~ JAMA Document No. 274 May 25<sup>th</sup>, 1999) may be applied.

## 3. Display Location

3.1. ~~Display monitor for in-vehicle display systems for on~~

- ~~Passenger vehicles~~ car with ten or fewer occupants.

- ~~Commercial vehicles~~ derived from passenger car and similar shaped vehicles.

~~other similar vehicle models:~~

**(2) The display shall be mounted in a position where the downward viewing angle is less than 30 degrees. The Downward Viewing Angle should be set between two lines that project on the vehicle's Y plane. The first line projected on the Y plane should be drawn from the JIS (Japan Industrial Standard) eye-point parallel to the x-axis and the second line should be drawn from the center of the Display Monitor to the JIS eye-point. ~~the straight line derived from connecting JIS eye point in a vehicle and the center point of the monitor, is less than 30° when the line is projected on the Y plane of the three-dimensional coordinate in the vehicle.~~**

**(1)**

(2) ~~In addition, the monitor shall be mounted in the position at which~~ The upper edge of the display monitor shall conform to the driver's visual range requirements (90/630/EEC) for the lower limit with the forward range of 180 degrees.

3.2. ~~Display monitor for i~~ In-vehicle display system on for a vehicle that is not specified in Paragraph 3.1. shall be mounted in the position at which:

(1) ~~The~~ the downward viewing angle shall be less than the value ~~of the straight line derived from~~

~~connecting JIS eye point in a vehicle and the center point of the monitor shall not be more than the value obtained from the formula below, when the line is projected on the Y plane of the three-dimensional coordinate of the vehicle?~~

Angle\* [degrees] = 0.01303 × (eye point height from the ground [mm]) + 15.07

(2)

The upper edge of the display ~~monitor~~ shall meet the following requirements.

① When the height of eye point above the ground is less than 1700mm ~~in a vehicle~~:

Comply with the lower edge limit requirements for the forward range of 180 degree<sup>°</sup> ~~defined~~ ~~(defined set)~~ in the driver's visual range requirements (90/630/EEC).

② When the height of eye point above the ground is 1700mm or more ~~in a vehicle~~:

Comply with the lower limit requirements for the critical zone A as defined set in the de-mister requirements (ADR15/01).

#### 4. Display Requirements while Vehicle is in Motion

Displayed screen images shall be easily understood in a short time ~~visible at a glance~~ and shall meet the following requirements.

##### 4.1. Map Displays

(1) Minor ~~r~~Roads in city shall not be displayed on the navigation map screen. It may be displayed ~~monitor except~~ when the systems does not require the driver's steady gaze on the screen and at the same time ~~monitor, or when the further use of the system~~ does not lead the driver ~~lead~~ to search the byroad ~~search~~ as specified below.

① **Principal roads for transport network and the minor roads that are selected during the set-up process of the route search may be displayed on the screen while vehicle is in motion.**

② If the scale of the navigation map is 1: 20,000 or more detailed, ~~m~~Minor ~~r~~Roads may be shown on the ~~displayed~~ ~~monitor~~ when the vehicle is running on that roads. ~~driven in such roads~~.

However, when the map on the display ~~screen~~ monitor is manually scrolled (including improved and simplified operation as described in Paragraph 54), ~~m~~Minor ~~r~~Roads ~~cannot~~ shall not be ~~shown on the~~ displayed ~~map~~.

③ If the scale of the navigation map is 1: 5,000 or more detailed, ~~m~~Minor ~~r~~Roads may be displayed while vehicle is in motion. ~~shown~~. However, when the map on the display monitor is manually scrolled (including improved and simplified operation as described in Paragraph 5), minor roads shall not be displayed.

~~(2) However, when the screen scroll is manually operated (including improved and simplified operation as described in Paragraph 4), Minor Roads cannot be shown on the displayed road map.~~

The navigation system ~~should~~ shall not confuse the driver by scrolling maps according to the vehicle's speed.

##### 4.2. Broadcast TV and Recorded Video Images

Televised picture and video images shall not be displayed on the screen ~~monitor of moving~~ while a vehicle is in motion.  
~~vehicles.~~

##### 4.3. ~~Other~~ Display for Guidance Information and others

(1) Addresses and telephone numbers shall not be displayed as guidance information when ~~a~~ vehicle is in motion. However, the ~~mid-search screen~~ screen in searching process without above

mentioned information ~~informatory contents~~ may be displayed ~~even~~ when the vehicle is in motion.

- (2) Descriptive information for hotels and restaurants shall not be displayed when a vehicle is in motion. However, the screen in searching process without above mentioned information may be displayed when vehicle is in motion.
- (3) ~~However, the mid-search screen display without informatory contents may be displayed eve~~ **Relevant and easily recognizable static images for driving may be displayed when the vehicle is in motion.**

#### 4.4. Dynamic Traffic Information

- (1) When dynamic traffic information is superimposed on a road map, information volume on the map shall be optimized for easier recognition.
- (2) Cautionary information (Travel warning) shall be easily distinguished from other information.
- (3) Travel time display shall be easily recognized at a glance and obtained without requiring complex calculation by the driver.
- (4) If traffic information is displayed in writing, the following shall apply, although, the names of information sources (e.g. broadcasting stations), titles, or time, are not considered part of traffic information.
- ① Characters shall not be scrolled.
  - ② Information shall not exceed 30 characters (including Chinese, Japanese and English alphabets). However, numerals, and units such as km/h, shall be counted as one character regardless of the number of digits. Moreover, punctuation and other symbols such as “~” and “,” shall not be counted as characters.

#### 4.5 FM Multiplex Broadcast

The FM multiplex broadcast display on a moving vehicle is set as follows:

|   | Program Number | Stationary Vehicle | Moving Vehicle |
|---|----------------|--------------------|----------------|
| ① Table of contents / initial screen                      | 0              | Yes                | Yes            |
| ② Emergency information                                   | 255            | Yes                | Yes            |
| ③ Major supplemental information not relevant for driving | 254            | Yes                | No             |
| ④ News  | 1 ~ 19         | Yes                | No             |
| ⑤ General information programs                            | 20 ~ 39        | Yes                | No             |
| ⑥ Traffic information                                     | 40 ~ 79        | Yes                | Yes            |
| ⑦ Supplemental information relevant for driving           | 80 ~ 99        | Yes                | Yes            |
| ⑧ Weather information                                     | 100 ~ 149      | Yes                | Yes            |
| ⑨ Other   | 150 ~ 249      | Yes                | No             |

### 5. Operational ~~Restriction~~ Requirements while Vehicle is in Motion

In-vehicle display systems shall be easy for the driver to handle. Complex operations such as mentioned below should be prohibited while a vehicle is in motion. However, these operations may be performed upon operational improvement.

- Setting or revising destination by operating cursor switch.

- Map Scrolling.
- **Map selection from hierarchical maps.**
- Map search by area name or POI (Point of Interest).
- Cellular phone ten-key operation.
- Data input of records, address lists, etc.
- Search for guidance in the form of addresses, telephone numbers, or information on restaurants, hotels, etc.
- Display area selection for dynamic traffic information.

Note: The operations listed in paragraphs 4 and 5 may be changed in response to future technical improvements.

## 6. Software Provided by Third Parties

When the software for the system is stored in memory media such as CD-ROM and it is easily replaced or added by same form of memory media provided by third parties, shall be ~~treated~~ complied with ~~as~~ following specifications.~~s~~.

### 6.1 Arrangement

**System provider may disclose the specifications such as CD-ROM to a third party provider on condition that such disclosing system provider shall have the third party provider comply with this guideline.**

### 6.2 Structure

To facilitate secure implementation of the software, it shall include a structure such as the following.

- System ~~E~~ shall have a CD-ROM identification feature so that any CD other than the designated CD-ROM shall not function.

## 7. Definitions

- (1) In-vehicle display systems ~~is~~ is a set of equipment that displays graphics, characters, numbers, or images, previously stored or received from outside.
- (2) Minor ~~Minor~~ road” means any road less than 5.5 meters wide, excluding major roads such as national highways, major local roads, and prefectural roads.
- (3) Principle Main Roads ~~road~~ road” means any road that connects with a road other than minor roads, even if the road is less than 5.5 meters wide, and contributes to the smooth flow of traffic. It also includes any roads, even if less than 5.5 meters wide in places, that connects with a road other than minor roads, if the driver would be confused by omission of the portion less than 5.5 meters wide.
- (4) Cursor switch operation” means the operation of displaying a cursor on the display ~~screen~~ and continuously moving it to indicate a specific position.
- (5) Data input” means the operation of using keys or cursor switch to input multiple characters, numbers, or symbols into the system.

- (6) “Scrolling” means continuously moving the display content, and includes moving the display of characters.
- (7) “Scrolling operation” means scrolling by continuously operating a switch, etc.
- (8) “Improved to constitute easy operation” refers to an improvement that makes it unnecessary to pay continuous attention to the variation displayed on [screenmonitor](#) in response to operation. For instance, it includes an operation in which the variation or set value is stored beforehand, so that the designated value can be set without paying continuous attention to the [screenmonitor](#).
- (9) “Dynamic traffic information” stand for constantly changing traffic information sent into the vehicle from outside using infrared light or radio waves, such as traffic congestion.