

# Standard



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London Underground

## Automated audio and visual information in public areas of stations and trains

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**A Standard is defined as:**

*A mandatory document which sets out minimum requirements expressed as outputs; or a mandatory document which defines an interaction or commonality which meets a defined LU requirement.*

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## 1 Purpose

- 1.1 The purpose of this Standard is to define the requirements for the delivery of automated visual and audio announcements and messages in all *public areas* of stations and trains.

## 2 Scope

- 2.1 This Standard applies to automated visual and audio information intended for customers.
- 2.2 Manually delivered information (such as live announcements and whiteboards messages) is not covered in this standard and is dealt with in other standards. However, the technical capabilities required to deliver live announcements are covered in this standard.
- 2.3 This Standard covers information delivered in all *public areas* of the station and trains. However, some of the detail relating to specific applications or areas are out of scope of this standard and will be found in other standards, for example, in a standard on customer lifts in London Underground (LUL) stations.
- 2.4 Signs and visual sightlines are not covered in this standard and are dealt with in other standards.
- 2.5 This Standard supports the following LU Policy:

*Note: The identification of Policies shown below shall have no material impact upon Infraco or other Suppliers beyond the obligations already contained in this Category 1 Standard. They are provided for LU reference purposes only.*

Number	Title	Version
1-01101-001	Service Delivery - Customer Environment and Information	A1

## 3 Requirements

All italicised words within this Standard are defined in section 6.3 of this standard.

### 3.1 Message content in *public areas*

- 3.1.1 Automated visual and audio messages shall be delivered according to the table in appendix 1.

### 3.2 Style

- 3.2.1 The AVA shall use a neutral female voice for all automated informational announcements described within this standard.
- 3.2.2 The voice intonations and continuity in the AVA shall make all announcements sound like natural speech.
- 3.2.3 All audio and visual announcements shall be made using plain English (UK) language.



3.2.4 If there is no travel information to be displayed, VEIDs on platforms shall be used to display informative messages that portray, where possible, a positive image of the company, including, but not limited to:

- lost property procedure;
- asking customers to keep belongings with them;
- no smoking;
- that the service is running on time.

### 3.3 Audio information capability and coverage

3.3.1 There shall be the capability to deliver, under standard *operation conditions*, *intelligible* audible information in all *public areas* of stations and trains.

3.3.2 There shall be appropriate audio capability (and appropriate signs) such that customers who use hearing aids shall *intelligibly* hear all announcements in all ticket hall, routeways, platforms and lifts under standard *operational conditions*.

3.3.3 All audio customer information systems shall be equipped with an AVA.

3.3.4 LUL staff in *station control areas* shall be able to control delivery of automated audio announcement and live announcements so that automated announcements can be delivered to selected station areas and where appropriate recorded messages can be replaced with live announcements.

### 3.4 Visual information capability and coverage

3.4.1 VEID panels shall be fully functional, available undamaged and clean.

3.4.2 VEID panels shall be kept in full working order.

3.4.3 VEID panels shall provide accurate real time information.

3.4.4 There shall be a minimum of one display on each platform. All displays shall be sited so as to ensure that sightlines are not unnecessarily compromised (technical standards refer). Displays shall be clearly visible and legible to customers as they enter the platform from any station routeway and from the middle of the platform. Care shall be taken when locating the display to ensure that it is not obscured by platform furniture, footbridges or other potential obstructions.

3.4.5 At Category A and B stations where one hundred or more customers each weekday are undertaking a journey that can be made by using two or more platforms, VEID panels shall be located in routeways to enable customers to choose the most appropriate platform.

3.4.6 There shall be a minimum of one VEID panel in each ticket hall of every station. The location of each display shall:

- ensure that the message shall be *legible* from the unpaid side of the ticket gateline, as close as possible to the station entrance;
- not encourage customers to stop such that the flow into or out of a station would be disrupted.

3.4.7 In train VEID messages shall be clearly *legible* from all parts of every train car unless standing passengers obscure sightlines. Positioning of the displays shall minimise such visual obstructions.



- 3.4.8 On trains, each message on the VEID panel shall be presented until it is replaced with a new message unless it is inappropriate to continue the current message e.g. The “This station (station name)” message is playing after the train doors have closed and the train is departing the station.
- 3.4.9 The name of the line and the destination and routeing of the train shall be displayed externally on the front and rear of each train and externally on the visible side(s) of each car of each train.
- 3.4.10 For the destination displays provided at the front and rear of each train, the following shall apply:
- the destination display shall be located centrally above the driver’s cab door;
  - the destination station name shall be centred within the destination display;
  - any supplementary information shall be displayed on a second line below the destination station name, in a smaller font size;
  - abbreviations shall not be used.

### **3.5 Provision of automated visual information displays - Outside stations**

- 3.5.1 On the exterior of stations, an emergency display will be provided at each street entrance which is only capable of:
- Conveying information necessary to prevent customers entering the station;
  - Emitting emergency warning sounds.
- 3.5.2 When a station is temporarily closed to customers as a result of an emergency, the display shall be activated.
- 3.5.3 Emergency displays must not be used for any purpose other than to advise customers that it is not safe to enter a station.

### **3.6 Provision of automated visual information displays - Ticket halls**

- 3.6.1 Visual information displays shall be provided in all ticket halls. Such displays shall be visible from the unpaid side of the ticket gateline, as close as possible to the station entrance. (There are locations where this may not be possible. In these situations, Infracos should approach LUL to seek a pragmatic solution.)
- 3.6.2 As appropriate, it shall be possible to operate displays from:
- Station Control Rooms;
  - Line Control Rooms;
  - Focus Control Rooms;
  - Network Control Centre.
- 3.6.3 Local variations may be required to suit particular locations and specific customer-led operational requirements.



### **3.7 Use of automated visual information displays - Ticket halls (normal operations)**

3.7.1 Visual information displays shall show as a minimum:

- the anticipated length of time before the next arrival of the next three trains in either direction on each line;
- the destination and routeing of each train displayed;
- where lines serve branches, the time before the arrival of the next train to each final or major destination on each branch;
- the platform number at which each of these trains will arrive.

### **3.8 Use of automated visual information displays - Ticket halls (service disruption)**

3.8.1 In addition to train arrival information, the following warrant a message being given out to customers when information is available:

- current service disruptions on any London Underground line;
- current service disruptions on other modes within the London area;
- current station closures on the London Underground network;
- current station or facility closures on other modes within the London area;
- current security alerts or other major events in specific areas of London (for example a fire in Oxford Street);
- the expected time of recovery (unless this could cause a safety problem through overcrowding).

### **3.9 Use of automated visual information displays - Platforms (normal operations)**

3.9.1 Visual information displays shall show as a minimum:

- the anticipated length of time before the arrival of the next three trains;
- the destination and routeing of each train displayed;
- where lines serve branches, the time before the arrival of the next train to each final or major destination on each branch;
- the prevailing platform edge safety message.

3.9.2 Where one platform is served by more than one line, details of the next services on each line should be provided. If the next three trains shown all serve one of the lines, information on when the next train for the other line should also be provided. (There are locations where this may not be possible, or the amount of information would be confusing – Earl's Court for example. In these situations, Infracos should approach LUL to seek a pragmatic solution.)



### **3.10 Use of automated visual information displays - Platforms (service disruption)**

3.10.1 In addition to arrival information, the following warrant a message being given out to customers when information is available:

- current service disruptions on any London Underground line;
- current service disruptions on other modes within the London area;
- current station closures on the London Underground network;
- current station or facility closures on other modes within the London area;
- current security alerts or other major events in specific areas of London (for example a fire in Oxford Street);
- the expected time of recovery (unless this could cause a safety problem through overcrowding).

### **3.11 Use of automated visual information displays - Trains**

3.11.1 When information is available, the following warrant a message being given out to customers:

- current service disruptions on any London Underground line;
- current service disruptions on other modes within the London area;
- current station closures on the London Underground network;
- current station or facility closures on other modes within the London area;
- current security alerts or other major events in specific areas of London (for example a fire in Oxford Street);
- the expected time of recovery (unless this could cause a safety problem through overcrowding).

### **3.12 Use of audible information - Stations (normal operations)**

3.12.1 Announcements shall not be made so as to cause unreasonable disturbance to neighbours in the vicinity of stations with surface platforms. Announcements should not be made before 07.00 hours or after 23.00 on surface platforms except in an emergency. Local variations may be needed.

### **3.13 Use of audible information - Platforms (normal operations)**

3.13.1 Prior to the arrival of a train in each platform, the following audible information shall be provided to customers:

- the name of the line;
- the destination and routeing of the train;
- the prevailing platform edge safety announcement.

Note: either by LU staff or automatically.

3.13.2 Advice regarding the availability of equipment that has failed (e.g. lifts and escalators) at that station shall be given on the arrival of each train in accordance with prevailing protocols.

3.13.3 In the event of an immediate or recent failure, a live announcement made by a member of staff should be used to convey this information. When time permits to programme the system, the automated voice announcer should be used to continue making PA announcements regarding the equipment failure.



- 3.13.4 The automated voice announcer should be used to announce details of long term station works or equipment overhaul that will affect the customer's ability to pass through a station.
- 3.13.5 If a station does have works taking place as described above, PA announcements to this effect should be made at the two stations either side of the station that is affected. Similar announcements should be made at key interchange stations on the line or lines that serve the affected station. Such announcements should continue at appropriate intervals during the period of disruption.
- 3.13.6 Platform announcements (whether by a member of staff or an automated voice announcer) should be timed to avoid coinciding with a train entering or leaving the platform or whilst an announcement is being made on the train and the train doors are open.
- 3.13.7 In between the departure and arrival of each subsequent train customers shall be provided with the following:
- the destination and routeing (if appropriate) of the next train;
  - the expected length of time prior to the arrival of the next train.
- Note: either by LU staff or automatically.
- 3.13.8 At stations where departures are possible from more than one platform in the same direction, customers shall be informed from which platform the first (or next) departure shall be.

Note: either by LU staff or automatically.

### **3.14 Use of audible information - Stations (service disruptions)**

- 3.14.1 Service disruption announcements shall be made at three minute intervals at stations in Zone 1. At other stations, announcements shall be more frequent than the scheduled train service interval. This shall be the case even when the reason for the delay is unknown.
- 3.14.2 In the event of an immediate or recent service failure, a live announcement made by a member of staff should be used to convey this information. When time permits to programme the system, the automated voice announcer should be used to continue making PA announcements regarding the equipment failure.
- 3.14.3 If a station is temporarily closed, PA announcements to this effect should be made at the two stations either side of the station, which has been closed. Similar announcements should be made at key interchange stations on the line or lines, which serve the closed station. All such announcements should continue at frequent intervals until the station has re-opened.
- 3.14.4 If the station which has been temporarily closed, is a Cat A station (see the Appendices), announcements to this effect should be made at all other Cat A stations until the closed station has re-opened.





3.14.5 When the train service is disrupted, departure announcements should be made helping to reassure customers that although there may be disruption, London Underground is in control of the situation and can assist customers with their journey. An announcement of this nature should include:

- an apology;
- either; a brief explanation of the problem (if known);
- or; a brief statement explaining that the source of the problem is not currently known (if not known);
- the location and/or time to arrival of the next train;
- the destination and routeing of the next train.

3.14.6 When information is available, the following warrant an announcement being made to customers:

- current service disruptions on any London Underground line;
- current service disruptions on other modes within the London area;
- current station closures on the London Underground network;
- current station or facility closures on other modes within the London area;
- current security alerts or other significant disruption in specific areas of London (for example a fire in Oxford Street);
- the expected time of recovery (unless this could cause a safety problem through overcrowding).

### **3.15 Use of audible information - Trains (normal operations)**

3.15.1 The timing of the announcement given on the approach to each station should be as consistent as possible across the network. The announcement should be timed to be close enough to the station which the train is approaching to be useful to customers, but not so close that it does not give customers time to get ready to alight. For exact details on the timing of automated on-train announcements, reference should be made to technical standards.

3.15.2 Prior to the doors being closed on all trains at any time, the AVA shall be used to convey the following information to customers:

- the name of the line;
- the destination and routeing of the train.

### **3.16 Use of audible information - Trains (service disruption)**

3.16.1 PA announcements to customers regarding service disruptions shall explain:

- the reason for the disruption;
- the expected repercussions;
- the estimated time of recovery;
- if the train is in a platform with the doors are open, alternative travel options.

3.16.2 If a train is stationary between stations, customers shall be given details about the delay as soon as possible and no longer than 30 seconds from when the train has stopped; and then at intervals no longer than three minutes after that. During long delays, announcements must be maintained to ensure continuing communication to customers.

3.16.3 This standard should also apply to trains which are stopped for routine or scheduled periods of time (e.g. regulation of the train service). From a customer's perspective, a stationary train is a delayed train (except whilst customers board and alight at stations).



3.16.4 When information is available, the following list warrant an announcement being made to customers:

- current service disruptions on any London Underground line;
- current service disruptions on other modes within the London area;
- current station closures on the London Underground network;
- current station or facility closures on other modes within the London area;
- current security alerts or other significant disruption in specific areas of London (for example a fire in Oxford Street);
- the expected time of recovery (unless this could cause a safety problem through overcrowding).

### 3.17 Audio information in lifts

3.17.1 All lifts shall be equipped with a secure two-way communication system to allow customers inside the lift to converse with staff outside of the lift.

3.17.2 As the lift approaches the ticket hall (where a lift is installed on the paid side of the ticket gateline) an automated announcement shall be made in the lift car asking customers to have their tickets ready.

3.17.3 As the lift approaches a landing, the AVA shall concisely deliver one or more of the following as appropriate to the landing and the station:

- directions to trains;
- directions to station exits;
- directions to frequently asked-for local attractions;
- any other information relevant to that station.

### 3.18 Audible warning for train doors closing

3.18.1 On trains, an automated audible door closing warning shall sound for a minimum of 3 seconds before the train doors start to move to their closed position.

3.18.2 The audible train-door-closing warning shall comprise, in order, the following:

- an automated 'mind the doors' announcement;
- a minimum of 1.75 seconds of single tone beeping.

3.18.3 The warning tone used for customer doors on trains shall:

- be uniform across all rolling stock on the LUL network;
- convey to the customer a sense that they should stand clear of the doors;
- have a tone that is distinctive from other tones used on rolling stock and infrastructure across the LUL network;
- comply with DDA/RVAR standards.

3.18.4 An announcement shall be made asking customers to mind the doors prior to the door chimes sounding indicating that the door close sequence has commenced. The style and tone of such announcements and associated warning tones will be standardised across the network to ensure customer recognition and understanding.



### **3.19 Duplication of audio and visual information**

- 3.19.1 LUL staff shall be able to reproduce any message(s) made by the AVA on any VEID panel(s).
- 3.19.2 Automated systems must allow staff to override them should the need arise.
- 3.19.3 On trains, the message made by the AVA shall be automatically reproduced in a textual format on the VEID panel.
- 3.19.4 On trains, the timing of information provided on the VEID panel shall coincide with announcements made by the AVA.
- 3.19.5 Whilst the train doors are open, there shall be no simultaneous broadcasts of automatic audible information from train and platform sources.

## **4 Responsibilities**

- 4.1 The suppliers are responsible for delivery of this standard.
- 4.2 This standard will be managed by the Director of Strategy and Service Development.

## **5 Supporting information**

### **5.1 Background**

- 5.1.1 The following appendix provides additional information.

### **5.2 Appendix 1 - Information content and time of delivery**

- 5.2.1 The table below shows:
  - what information is delivered (listed in the first column);
  - when information is delivered (listed in the header row);
  - how and where the information is delivered (specified in each cell of the table).
- 5.2.2 To interpret the numbering in the cells, the table is to be read in columns. For example the first column 'Train approaching station' refers to all the messages (visual and audio) that are delivered when the train is approaching a station. The messages are only numbered when the order of delivery is important. Where the number is prefixed by an S (station) and a T (train), like in the first column, this is because the group of messages delivered in the station must be considered independently of the group of messages delivered on the train. For example, the name of the line is the first in the sequence to be delivered on the platform and the name of the approaching station is the first to be delivered in the train.
- 5.2.3 Where cells are empty, no information is delivered for that content/timing combination.



Information content (in order of delivery unless otherwise stated)	When information is delivered (see 5.2.2 for explanation of numbering in cells)			
	Train approaching station <sup>1</sup>	Train coming to rest at platform	Just prior to train doors closing	At all times
<b>Name of the line</b>	S1. AVA or staff on platforms		2. AVA in train cars	
<b>Destination and routing of the (next) train</b>	S2. AVA or staff on platforms		3. AVA in train cars	
<b>Expected length of time prior to the arrival of the next 3 trains and, where a platform serves more than one route, the next train on each route. The destination and routing for each train</b>				VEIDs on platforms and in routeways and ticket halls
<b>Platform required (usually using numbered referencing)</b>	S3. AVA or staff where two adjacent platforms may serve the same route			VEIDs in routeways and ticket halls
<b>Platform edge safety announcement</b>	S4. AVA on platforms. VEIDs on platforms.			
<b>Name of (approaching) station</b>	T1. AVA in train cars.	1. AVA in train cars.		
<b>Name of next station</b>			1. AVA in train cars.	
<b>Key interchange information<sup>2</sup></b>	T2. AVA in train cars.	3. AVA in train cars.		
<b>Major landmarks and local attractions</b>	T3. AVA in train cars.	4. AVA in train cars.		
<b>That the train will be terminating (and why)<sup>3</sup></b>	VEID on platforms.	5. AVA in train cars.		
<b>That customers should change and ensure they have personal belongings with them<sup>4</sup></b>		6. AVA in train cars.		
<b>Announcement that some doors in the car will not open and the reason</b>	T4. AVA in train cars that some doors will not be opened	7. AVA in train cars that some doors will not be opened		
<b>'Mind the gap' announcement<sup>5</sup></b>		2. AVA in train cars. 8. AVA on platforms		
<b>'Mind the doors' announcement</b>			4. AVA in train cars	
<b>Door-closing-warning beeping tone</b>			5. AVA in train cars	

<sup>1</sup> There are two separate sequences for trains and stations and the relative ordering between train and station announcements is not important; S1, S2 etc is for station announcements and T1, T2, etc., for train announcements. Station announcements (S1, S2 etc.) shall be made before the train has entered the platform.

<sup>2</sup> Where two (or more) lines serve consecutive stations or run in parallel, only convenient interchanges shall be promoted.

<sup>3</sup> Only applies to trains terminating at the next station (e.g. approaching a terminus station)

<sup>4</sup> Only applies to trains terminating at the next station (e.g. approaching a terminus station)

<sup>5</sup> Only applies to stations where the gap between the train step and the platform edge exceeds agreed limits



## 6 References

### 6.1 Abbreviations

The following abbreviations are created:

- within this document;
- within the engineering function and are listed in E1006;
- from published sources.

Abbreviation	Definition	Source
AVA	Automated voice announcer	c - PPP contract schedule 2.1, 2.9.1
VEID	Visual electronic information display	c - PPP contract schedule 2.1, 2.9.1

### 6.2 Definitions

The following topic specific definitions are created:

- within this document;
- within the engineering function and are listed in E1006;
- from published sources.

Term	Definition	Source
Automated voice announcer	A piece of equipment that automatically delivers pre-recorded audio messages at pre-programmed times such that customers receive relevant information at the appropriate time and place.	a
Intelligible (of audio messages)	Each word can be clearly heard and recognised. It is not sufficient for the listener to be able to recognise the words from their prior knowledge of messages to make correct inferences regarding the message content.	a
Intelligibly hear	Hear such that the message is intelligible.	a
Legible (of visual messages)	Each character (including spaces, punctuation and any other symbols) can be clearly seen and recognised. It is not sufficient for the reader to be able to recognise the words from their shape or use their prior knowledge of messages to make correct inferences regarding the message content.	a
Lift	Any lift that carries passengers however infrequently. No distinction is made, for example, between large lifts used as the primary route through the station and smaller lifts used only for mobility impaired customers.	a
Public areas	Areas where the general public have unrestricted access, such as platforms, customer toilets, <i>lifts</i> etc.. This definition is context dependent. For example, during an emergency evacuation the general public may have unrestricted access to an area which is not normally open to the general public; this area would be classified as a public area for the duration of the emergency.	a



Term	Definition	Source
Route	A sequence of stations from current station to service terminus station. This means each network line provides a unique <i>route</i> (even if it shares a sequence of stations with another network line for part of the <i>route</i> ). One network line also provides more than one <i>route</i> if there are branches in the network line.	a
Station control areas	Areas within the LU station where the LU staff control technical aspects of running the services, including but not limited to station control rooms, network control rooms and line control rooms.	a
Operational conditions	Conditions (and implicit restrictions placed upon customers) that are present when the service is in operation, such as customers obstructing visibility, or wind noise from open windows.	a
Visual electronic information display	A piece of equipment that automatically delivers pre-programmed visual messages at pre-programmed times such that customers receive relevant information at the appropriate time and place.	a

### 6.3 Requirement owner

Paragraph number	Owner
All	LUL Strategy and Service Development

### 6.4 Document history

Edition	Date	Changes	Author
R1	August 2003	First draft issue to accompany PSC form signed by RM	LUL M&P
R2	September 2003	Minor changes in light of review by SQE including transferral to new Standards format.	LUL M&P
R3	November 2003	Migration of clause from section 5.7 of LU train livery and exterior graphics M&P/3/B1/008/1 v1.1 included and re-submitted to PSC	LUL M&P
R4	January 2004	Revised to reflect LUL comments as part of PSC process	LUL M&P
R5	May 2006	Revised to reflect Infraco comments as part of the PSC process	LUL S&SD
R6	May 2006	Revised to incorporate existing requirements from other standards	LUL S&SD
R7	June 2006	Revised to incorporate changes agreed at review meeting	LUL S&SD
A1	June 2006	Approved for issue	LUL S&SD
1-312 A2	November 2006	Standard renumbered. Clause 3.16.2 amended from "... two minutes from when the train has stopped ..." to read "... 30 seconds from when the train has stopped ..." as directed by the Chief Operating Officer and the Director of Strategy and Service Development.	LUL SQE