



Guidelines for Induction Loop Hearing Systems installed in licensed London Taxis and Private Hire Vehicles (PHVs)

1. Introduction

- 1.1 The Equality Act 2010 states it is illegal to discriminate against disabled people, including people who are deaf or hard of hearing in the workplace, in education and when accessing goods and services.
- 1.2 Hearing aid users can experience difficulties using their hearing aids when the level of ambient noise is too great, such as when in a moving vehicle, and when there are physical barriers between the vehicle operator and the passenger i.e. a screen. These known factors are an inherent feature of London style taxis.
- 1.3 Vehicles can also introduce a number of additional complications for passengers using assistive listening technologies including the possibility of Electro Magnetic Compatibility (EMC), magnetic interference from other equipment and vehicle components, movement vibrations, temperature changes and metal within the vehicle structure.
- 1.4 The purpose of these guidelines is to provide taxi manufacturers', PHV converters, drivers and taxi owners with information and guidance regarding TfL's requirements in relation to the installation of induction loop hearing systems in taxis and PHVs licensed by TfL.

2. General requirements

- 2.1 All taxis licensed by TfL are required to have installed an approved induction loop hearing system.
- 2.2 The induction loop hearing system must provide sufficient magnetic field strength and frequency response to ensure passengers' using 'T' coil equipped electronic devices can comfortably hear the driver.
- 2.3 The driver's cab microphone for communicating with passengers using 'T' coil equipped hearing aids must be active at all times the taxi is operating as a London taxi.
- 2.4 The driver's cab microphone for communicating with passengers using T coil equipped hearing aids must be installed as close as possible to the "talking position and provide significant improvement upon the signal received by the hearing aid microphone alone.
- 2.5 The induction loop hearing system installation standards should ensure the systems operational functionality is within the optimised operating range, providing the best possible service for passengers.
- 2.6 Nationally accepted signage/notices shall be displayed in agreed locations within the taxi identifying that an induction loop hearing system is installed and available to passengers.

3. Specific Requirements

- 3.1 All induction loop hearing systems installed into licensed taxis in London must comply with [IEC 60118-4:2014+AMD1:2017 CSV](#) (ED 3.1) standard.
- 3.2 All induction loop hearing systems installed into licensed taxis and PHVs in London must comply with BS EN 62489-1:2010+A2:2018 regarding the testing and recording of data.
- 3.3 The taxi manufacturer must provide the TPH Vehicle Policy Manager with a specification document for the induction loop hearing system (See appendix A for accepted example), to include:-
- Make, name and model of induction loop hearing system
 - E mark and EMC certification
 - Test results confirming the installed induction loop hearing system complies to [IEC 60118-4:2014+AMD1:2017 CSV](#) (ED 3.1) standard
 - Certificate of conformity confirming compliance to [IEC 60118-4:2014+AMD1:2017 CSV](#) (ED 3.1) standard
 - Certification testing and data recording methods regarding induction loop hearing systems complies to BS EN 62489-1:2010+A2:2018
 - Wiring diagram of the installation that identifies the positioning of all components of the induction loop hearing system
 - exact pad location using visible datum points and measurements for loop positioning
 - audio frequency field strength details
 - audio frequency field strength using diagrams showing coverage along swept area, horizontal and vertical axis
 - background noise, interference does not exceed the recommended limits as defined in standards BS7594, BS6083, BS6840, BS EN 60118

4. Compliance

- 4.1 To ensure consistency in testing methods and standards all testing equipment should be capable of fulfilling the criteria set out below.
- 4.2 All induction loop hearing system testing should be taken and recorded at all seating positions within the vehicle.

- 4.3 All induction loop hearing system testing equipment is required to:
- Reference test signals
 - Measure field strength
 - Ability to input pink noise
 - Measure and analyse frequency
 - Incorporate a loop listener/receiver
 - Certify and test conformity
- 4.4 TfL may from time to time request induction loop hearing systems to be subject to testing at the annual licensing inspection and/or as and when required.
- 4.5 TfL may from time to time request for a taxi to submit new test documentation to be provided to ensure a taxi hearing loop system is operating correctly and complying with the requirements set out in these guidelines.
- 4.6 The induction loop hearing system inspection criteria (Section 3.8 of the manual) of the Vehicle Licensing Inspection Manual will apply.
- 4.7 If during the annual licensing inspection (or during a compliance inspection) of a taxi or PHV, it is found that these guidelines have not been complied with the vehicle may not be licensed or an existing licence may be suspended.

Appendix A

Certificate of Conformity Test Certificate










Induction Hearing Loop Systems – Taxi & PHV installations

Installation Details	Testing Details
Vehicle Reg:	Company:
Make & Model:	Tester Name:
Owner Details:	Date:
System Manufacturer:	Test Equipment Manufacturer:
Amplifier Model(s):	Test Equipment Model(s):

All positions should be measured at the ear height of a seated passenger.

Test Positions: <i>(sketch a plan of seating positions relating to the vehicle being tested)</i>														

Label each passenger seat A to H as applicable and indicate the drivers' seat position with the letters "DRS"

Test point	A	B	C	D	E	F	G	H	
Height									
1.	Magnetic background noise (all electrical components active)								
	A	B	C	D	E	F	G	H	
	 All readings are < -32dB(A)		 Any readings between -32dB(A) and -22dB(A)			 Any readings of > -22dB(A)			
	Comments:								
2.	Field strength (1KHz combi)								
	A	B	C	D	E	F	G	H	
	 All readings 0dB +/- 6dB		 All readings 0dB +/- 8dB			 All readings > 8dB or < 8dB			
	Comments:								
3.	Frequency response (Pink noise)								
	A	B	C	D	E	F	G	H	
	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz	
	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz	
	5KHz	5KHz	5KHz	5KHz	5KHz	5KHz	5KHz	5KHz	
	 100Hz & 5Hz +/- 3dB of 1KHz in all positions		 100Hz & 5Hz +/- 3dB of 1KHz in some positions			 Frequency response not achieved			
	Comments:								

4.	Live signal – Listening test (Actual signals)	Does the input signal indicator show a signal is present?						Yes	<input checked="" type="checkbox"/>
								No	<input type="checkbox"/>
		Note: It may be necessary to input noise via the drivers' microphone. If so, the signal generators speaker should be no more than 300mm distance from the driver microphone at 5dB							
		Using authorised testing equipment & headphones – rate each seat position (please tick)							
		A	B	C	D	E	F	G	H
		Background noise i.e. the level of hum or buzz is not intended to be heard <input type="checkbox"/> Quiet <input type="checkbox"/> Noticeable <input type="checkbox"/> Very noisy							
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Unpleasant program signal i.e. the popping or fizzing sounds alongside normal signals <input type="checkbox"/> Clean <input type="checkbox"/> Noticeable <input type="checkbox"/> Distorted							
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Signal clarity i.e. is the sound clear, dull or muffled? <input type="checkbox"/> Clear <input type="checkbox"/> Noticeable <input type="checkbox"/> Unclear							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Are normal signals delivered without triggering the clip or overload LED? <input type="checkbox"/> Yes <input type="checkbox"/> Some clipping, audio OK <input type="checkbox"/> Clipping									
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Comments:									
5.	Live signal field strength (Actual signals)	In at least one position, with live speech signals, does the system achieve peaks of acceptable field strength? (please tick)							
		<input type="checkbox"/> Between -6dB & +3dB		<input type="checkbox"/> Between -9dB & +8dB		<input type="checkbox"/> > +8dB or < -9dB			
		Comments:							

6.	System noise (inputs muted)	In at least one position, with the amplifier on but audio inputs muted, is the noise level significantly higher? <i>(please tick)</i>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Comments:		
Result	Based on steps 1 to 6 does the system perform to IEC60118-4 standard? <i>(Please tick)</i>			
	SYSTEM PASS (all ticks in green/yellow boxes) <input type="checkbox"/>	PASS (LIMITED) (Up to 2 ticks in yellow boxes) <input type="checkbox"/>	SYSTEM FAIL (1 or more ticks in red boxes) <input type="checkbox"/>	
	Comments:			

I, the signee, declare this system has been tested against the requirements of IEC60118-4	Print name:	Date:
	Signature:	