From: [redacted] <[redacted]@exterionmedia.co.uk>
Sent: 05 October 2017 14:06
To: [redacted] <[redacted]@tfl.gov.uk>
Cc: [redacted]) <[redacted]@TfL.gov.uk>; [redacted] <[redacted]@exterionmedia.co.uk>; [redacted] <[redacted]@tfl.gov.uk>; [redacted] <[redacted]@tfl.gov.uk>; [redacted] <[redacted]@exterionmedia.co.uk>
Subject: Re: Update on LED Bus

Hi [redacted] thanks for your email. I am away from the office today and will respond back to you tomorrow
Thanks
[redacted]

Sent from my iPhone

On 5 Oct 2017, at 13:28, [redacted] <[redacted]@tfl.gov.uk> wrote:

Hi [redacted],
Thank you for the data. I am now satisfied with all the points listed below.
Is there any further update on your proposals on how the assessment of the trial will be carried out?
Regards
[redacted]
Transport for London
197 Blackfriars Road, 10Y4
London
SE1 8NJ
[redacted]
[redacted]@tfl.gov.uk
Please consider the environment before printing this e-mail
From: [redacted] [mailto:[redacted]@exterionmedia.co.uk]
Sent: 28 September 2017 14:22
To: [redacted]; [redacted] (ST); [redacted]; [redacted]
Cc: [redacted]
Subject: RE: Update on LED Bus
Hi [redacted] as promised the information that you required

1. The VPT5 test did not take place on the 25th due to an engine fault on the bus that morning. The test is rescheduled for the 9th October.
2. Attached are the calculations for the LCEB. Also copy of Email from Volvo.
3. N/a
4. N/a
5. The system has been tested and works
6. The ambient light tables are attached

Kind Regards
[redacted]
From: [redacted] [mailto:[redacted]@tfl.gov.uk]
Sent: 28 September 2017 10:05
To: [redacted] (ST) <[redacted]@TfL.gov.uk>; [redacted] <[redacted]@exterionmedia.co.uk>; [redacted] <[redacted]@exterionmedia.co.uk>; [redacted] <[redacted]@tfl.gov.uk>
Cc: [redacted] <[redacted]@tfl.gov.uk>
Subject: RE: Update on LED Bus

Hi [redacted],

1. How did you get on with the VTP5 test scheduled for the 25th September? Could you confirm the previous passenger capacity and what the new capacity is please
2. Could you provide me with Volvo's calculations and any assumptions used to prove that the LCEB certificate is still valid please
3. No Comment
4. No comment
5. Has this system to manage the transition between electric drive mode and diesel-electric been tested?
6. I have not received these tables of ambient light (LUX) Vs LED brightness (LUX) including maximum and minimum levels. Please forward this to me.

Kind Regards

[redacted]
Transport for London
197 Blackfriars Road, 10Y4
London
SE1 8NJ
[redacted]
[redacted]@tfl.gov.uk

From: [redacted] (ST)
Sent: 18 September 2017 13:42
To: [redacted]; [redacted]; [redacted]; [redacted]
Cc: [redacted]
Subject: RE: Update on LED Bus

Hi [redacted] – have my TfL colleagues signed this off? [redacted] is on leave and I want to make sure both the Technical and Engineering teams have approved as appropriate.
Thanks
[redacted]

From: [redacted] [mailto:[redacted]@exterionmedia.co.uk]
Sent: 15 September 2017 17:15
To: [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted]; [redacted] (External Relations); [redacted] (ST); [redacted]
Subject: Update on LED Bus

Good afternoon all,
this is an update with reference to our depot meeting at Tottenham and the points raised.
As you will see from below all the queries raised have been addressed and completed with the exception of the VTP5 test which is booked in for the 25/09/17.
We are confident that this test will be successful and following this we shall start the roll out of the remaining 19 buses for this project.
Should you have any questions concerning this update please feel free to come back to me.
Kind regards
[redacted]

TASK	STATUS
1. VTP5 required for the bus to have the alteration of un-laden weight and reduction in passenger numbers checked and verified for braking systems, etc – Action: [redacted] to raise form and Arriva London to submit and arrange for the bus re-approved. Retest set for 25/09/17. At this stage we are confident of a pass but unsure what the VTP5 will cover and whether any other tests will need to be done by	Test date set for 25/09/17

bus company. We are hoping that a VTP19can be issued to cover all buses of this type with the LED screen.	
2. Un updated LCEB Certificate is required for the bus to take account of the emissions rating of the bus based on reduced passenger capacity due to the weight of the digital display increasing the un-laden weight. - Action: EM to request from Wright Bus. Volvo have confirmed that a new LCEB is not required as the Volvo bus exceeds the standard required of 87 passengers even with the reduction for weight. [redacted] has completed calculations to prove the case. The bus even with the LED on board weighs less than the current weight on the certificate.	Completed
3. The EMC picked up by the bus radio antenna showed a 10dB rise in background noise when the system was running which did not affect the radio operation but could be an issue to radio communications in low signal strength areas. The LED display system needs to be EMC tested as a whole system, cables need to be checked and extra shielding added with ferrites, not just one tile and be tested to the current standards. - Action: Hive to have whole system tested to the required standards with suitably shielded power/data cables EMC testing has been completed and a pass certificate issued. passed 02/09/17 Hive have fitted all requirements to current screen to bring it up to the EMC certificate standard. [redacted] will perform an inspection on 15/09/17 to ensure the standard has been met in situ.	Completed
4. Volvo to be consulted about the advised battery voltage level where the digital display should be blanked or turned off to avoid excessive battery drain. - Action: Exterion Media and Hive to consult Volvo to agree trigger voltage level [redacted] has done this and Volvo have confirmed that the figure should be 23volts. They also stated that there is an integral safety device which will cut of any auxiliary equipment if the battery becomes too low.	Completed
5. LED display control system to be configured to allow the display to run when the bus is in running mode whether the engine is on or off, but shut down when the bus is turned off. - Action: Hive to evaluate and design suitable modification to the control and monitoring system setup A pull down resistor will be fitted on 25/08 which will allow the screen to operate on hybrid when engine is not running and switch off when bus is parked up.	Completed
6. The switch inside the control panel on the upper deck is to be re-designated as an Engineers Switch for use by maintenance engineers when checking bus sub-systems only, not a driver's switch. - Action: Hive to label and amend wiring diagram as appropriate. This has been completed	Completed

7. All added wiring for the LED Display system to be clearly labelled 'Advertising Display Power or Data' at each connection point of the cables and with markers 10cm from each end of the cables. - Action: Hive to label all interconnecting system cables This has been completed	Completed
8. The actual measured light output of the screen is to be given in Lux levels and mapped against the brightness reduction as the light sensor is subjected to different levels of ambient illumination. - Action: Hive to map and publish the light output along with the maximum and minimum light levels achievable so that acceptable limits can be agreed and set for use in service. Hive have provided output tables and have also carried out light meter testing to confirm the luminosity. These tests completed	Completed

[redacted]

Exterion Media 7th Floor, Lacon House, 84 Theobald's Road, London, WC1X 8NL
M: [redacted] www.exterionmedia.co.uk

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