From: Bruce H.T. Ennion [bhte@ Sent: 22 December 2007 00:35

To: Chandler, Jason; Dolan, Alan

Cc: Reynolds, Steve

Subject: FW: Initial EMC Study/Report

Attachments: EMC Initial Study-Report estimate & discussion.doc

Importance: High

Jason & Alan

Please read and respond a.s.a.p.

For obvious reasons we need to progress Mr Moore - his rates being £ day - and I would like to be able to respond to him before Christmas.

The situation has not got any better by my requesting assistance from Gordon Callander who has escalated my recorded dissatisfaction with the progress made by Simon to John Morris and Steve (Steve has already been a recipient of my Emails anyway and I feel sure will form his own opinion)

Elements of Gordon's response are quite astonishing as I understood PB worked as a team. I quote an extract from his reply to me 'As **tie** has employed David Bradley to look into the track circuit issue, I am not prepared to have my very busy signalling design staff act as "gophers" for Mr Bradley'. I sent Gordon a copy of **ties** letter telling us why they considered they needed to employ Mr Bradley, basically because Simon was not delivering, however Gordon's approach does not appear to recognise this fact nor the fact that an important PB client is dissatisfied - putting it mildly!

I would like to set Paul Moore away to draft a document and meet with him some time W/b 07.01.08 in Edinburgh to put some flesh on his document and at the same time let **tie** (Colin Kerr and Tony G) see that we are responding.

I remain available on my mobile of via the above Email address

Have a good one

C U in 2008 - but hope to hear from you immediately

Bruce

PS - I am unable to send from my PB site as its all clogged up with ER's

From: Paul Moore [mailto:pmoore@fmaconnect.co.uk]

Sent: 21 December 2007 13:48 **To:** bhte Ennion, Bruce **Subject:** Initial EMC Study/Report

Hi Bruce

I have considered your email of 18 December and attach a document with my thoughts on this work remit, there maybe some helpful areas for consideration.

My problem is that I am not clear on what can be done at this stage and before the meeting with NR regarding EMC apart from the work already done on signalling immunisation by David Bradley with respect to stray currents. I am happy that my name is added in NR circles if this adds some comfort that ETN are serious in enlisting competent persons to assist on the Project.

Clearly I am aware of the coupling mechanisms that exist between traction packages on trams and third parties (including NR). I am also aware that if the tram supplier is using EN50121 as the basis for compliance there are certain 'gaps' that exist in terms of nearness and magnetic radiation that may be invalid. I guess I need to know do you really want a report for NR or is it more a procurement specification to both the InfraCo and the E&M supplier that distils what I think would be required in terms of relevant specification, testing and approval etc.

To do a more in depth study/report would require details of the traction & auxiliaries frequency spectra, filter parameters, spatial position of components in the tram etc. Whilst most of the interactions will be benign, there are one or two interactions that could cause issues with older third party technologies including telecommunications and radio services.

I am available over the Christmas period via email and will physically check in the office on Monday (24) & Thursday (27) and I am back in the office from Wednesday 2 Jan.

Regards

Paul Moore

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