

4G/TV Co-existence Oversight Board Meeting

Chair's report to Ministers and Ofcom

Meeting date: 18 November 2015

Attendees

David Hendon, Chair	Ben Roome (DMSL)
Paul Rosbotham (Vodafone)	Mark Caines (Ofcom)
Robin Vernon (O2)	Alberto Fernandes (Ofcom)
Inge Hansen (EE) (via tele-conf)	Ian Dewhurst (DCMS)
Erol Hepsaydir (Three)	Sue Ramroop (DCMS)
Alan Boyle (BBC) (via tele-conf)	Michelle Brownrigg (DUK)
Alexandra McNair (ITV)	Andrew Dumbreck (Technical Advisor)
Peter Couch (Arqiva) (via tele-conf)	<u>Apologies</u>
Roger Darlington (Non-Executive)	Nick Munn (DCMS)
William Webb (Non-Executive)	Philip Milton (Channel 4)

1. Executive Summary

- 1.1 There were 10,448 confirmed cases of 4G interference at 800MHz as of the end of October, excluding the 35 cases during the pilots. The position remains lower than expected.
- 1.2 All KPI targets were met in October; 924 confirmed 4G interference cases were resolved within the 10 working day target. Two further cases were unresolved beyond the target as issues with poor weather and capacity constraints delayed the safe roof access required to restore the DTT service at the households involved. Both cases are now closed.
- 1.3 The Coexistence Technical Working Group (CTWG) presented their final recommendations for modifications to the prediction model. As adopting the changes will impact the at800 operation, not least because it would involve mailing approximately 2 million households, the Board have agreed the modifications in principle subject to the analysis and proposals of a transition plan by at800, which should also take account of the proposal to mail households closer to the time that masts that may affect them are activated.
- 1.4 The Board expects to consider the transition proposals in January 2016.

2. at800 update

Roll-out

- 2.1 As of the end of October, there were 10,448 confirmed cases of DTT interference caused by 4G at 800MHz, excluding the 35 cases found within the pilots.

Mast Analysis

- 2.2 The cumulative cases of interference reported within 28 days of mast activation for both 900m and 1.5km rose slightly in September (0.30 and 0.43 respectively) from 0.28 and 0.41 in August.
- 2.3 The number of monthly cases of interference reported per mast for both distances of 900m and 1.5km significantly decreased in September (0.62 and 0.78 respectively) from those reported in August (0.99 and 1.13). The sharp increases in August were due to a greater proportion of mast activations during that month to areas that at800 had recently mailed.
- 2.4 The average number of cumulative cases per active mast is at 1.23 and the rolling average of confirmed cases per activated mast across a 3-month period to October is 1.98.
- 2.5 at800 considers that the recent rise to almost two cases per mast is a reflection of the increased likelihood of interference as 4G coverage at 800MHz expands into areas of TV transmitter overlap and/or lower DTT signal strength.

Installer Scheme and Audit Summary

- 2.6 There were 2,314 visits originally scheduled to take place in October with nearly 100% (2,142) undertaken and closed as arranged with over 96% (1,920) of those completed appointments taking place within the three working day target.
- 2.7 The number of scheduled visits remains high with the effects of the mailing activity throughout the summer period covering June to September (1,884,313 postcards in total) and 176,312 postcards in October contributing to the increased levels.
- 2.8 Also, events unrelated to at800 or mobile network operator (MNO) activity, generated a spike in the calls and visits in North East England due to atmospheric conditions impacting on signals (i.e. tropospheric ducting) and in South Wales and the East Midlands areas due to work on the Kilvey Hill and Sandy Heath TV transmitters.
- 2.9 at800 was able to meet the demands caused by these separate incidents, although not without some disruption to its operation (para. 2.13), specifically for the Swansea issue, in managing contact centre resources and engineering capacity that incurred increased costs.
- 2.10 Digital UK will work with at800 with the aim of ensuring that information on planned engineering work on TV transmitters is shared before they occur. This will allow at800 to better manage its resources and ensure viewers receive improved support

by being able to identify non-4G issues (i.e. known television signal disruption) affecting TV reception in specific areas.

- 2.11 Ofcom noted that any procedures established now would be of use in future spectrum clearance programmes where there may be unavoidable disruption to DTT viewers and might inform the type and appropriate level of support provided. On behalf of Ofcom, I offered any assistance that may be required to establish a workable procedure agreeable to all parties.
- 2.12 There were 95 audits completed in October for engineer visits originally undertaken in August (12), September (74) and October (9). There were eight overturns: two from non-4G to 4G and six from 4G to non-4G. The high level of overturns in October was due to a focus on auditing engineers who have either not been audited before or who haven't been audited for some time.
- 2.13 Furthermore, due to an increased volume of work within the area of a particular regional contractor (para. 2.9), extra resource was required to meet demand and ensure that bookings were undertaken as scheduled within the three-day target. Whilst the additional engineers had all undertaken the required at800 training (including refresher training), there was a lack of recent experience in the field and it is believed that this contributed to the increase in mis-diagnosis.
- 2.14 The regional contractor management teams have taken steps to improve the quality of work with all engineers that might be called upon to support at800, reinforcing their own policies and procedures including increasing internal auditing to ensure issues are identified and resolved promptly.
- 2.15 In January 2015, my report mentioned that upon attending a bespoke version of the training undertaken by engineers to achieve at800 accreditation, the Coexistence Technical Working Group (CTWG) observed the challenges faced in correctly diagnosing 4G interference included 'the accurate assessment of marginal 4G cases where signal measurements are inconclusive either way and (the presence of) below-specification in-home DTT installations'. Taking this observation on the usual difficulties in making correct assessments into account, any gaps in recent field experience combined with distorted signals caused by atmospheric conditions (para 2.8), is likely to be impair accurate diagnosis.

Communications

- 2.16 Last month I reported on the findings of the qualitative research undertaken by at800 into the effectiveness and content of the postcards. Taking the feedback from the participants on board, at800 intend to amalgamate all postcards (initial awareness and reminders for both households and communal properties) into one simplified

version that covers all purposes and, subject to revision through further review by test groups, will implement the new design on a phased approach from March 2016. A copy of the new postcard will be shared with the Board once finalised.

- 2.17 In addition, I am aware that at800 is removing the 'Let's be clear' logo from all communications, including the website, to avoid the confusion expressed by the research participants on the actual name of the company that provides the mitigation assistance.
- 2.18 As an opportunity to further strengthen and reinforce the at800 'brand', the organisation has also produced a 'uniform' of fleeces for the core operation teams, including the call centre staff, with high-visibility vests for engineers and auditors only. Displaying the at800 logo and colour scheme, the fleeces and vests instantly identify the wearer as a member of the company and will, aside from providing reassurance as an engineer or auditor engaging with the public face-to-face, promote the name.

3. KPI Report

- 3.1 at800 reported passes against all KPIs. Of the 926 confirmed 4G interference cases in October, 924 were resolved within the ten working day target achieving a 99.78% pass rate.
- 3.2 Two cases were unresolved beyond the target as they required safe access to the roof in order to fix the issues; a combination of poor weather conditions and constraints on resources meant that the work was delayed and took place on the 11th working day after initial contact at one household and on the 13th working day in the other; both cases are now closed.
- 3.3 As a result of increased data checks undertaken by at800 in order to avoid a repeat of the errors discovered in the summer that led to additional mailings because of missed households, the Service Level Agreement (SLA) target for SLAB1, which relates to identified addresses mailed at least once no more than 12 weeks ahead of mast activation, was marginally missed in October by 1.2% (98.8%). This meant that 1,432 households (of a total 115,071 identified for mailing in October) were within 900m of a mast that was activated before the postcard landed.
- 3.4 As at800 is now aware of the additional time required to conduct the thorough checks, this will be taken into account for the future to avoid a recurrence.

4. Modelling Change recommendations

- 4.1 The CTWG submitted their final recommendations on the prediction model modifications to the Board. The investigative work and analysis has been focused on the refinement of the modelling parameters, including expected antenna gain and the low likelihood of aerial amplifiers in high TV signal strength areas, and an adjustment of the degradation threshold used to differentiate the risk of interference.
- 4.2 The recommendations also propose that the current degradation threshold, which differs between London and the rest of the country, is removed as the over-prediction that occurs because of the good TV signal strength and low frequencies of the Crystal Palace transmitter, will be corrected by the new parameters.
- 4.3 The CTWG consider that the changes to the model will improve its accuracy with the potential to assess high-risk areas for future mast activations. There is also possibility that further improvements could be introduced such as more accurate digital preferred service areas (DPSA or TV service areas), which may, in turn, reduce the model computing time.
- 4.4 Whilst these modifications will not involve any software changes to the prediction model itself, the changes will mean that a large volume of households not previously identified as at-risk, or that have not been mailed since the last mailing change introduced nearly two years ago, will be re-classified and need to be mailed. This will involve approximately 2 million households and will, obviously, have a major impact across the at800 operation.
- 4.5 Therefore, the Board agreed the recommendations in principle and have requested that at800, with assistance from Digital UK, consider the impacts of the changes to the operation and a suitable transition plan. The proposals will also incorporate the potential changes to the overall mailing operation with regard to the timeliness of postcards in relation to mast activations (i.e. reminder mailings) and possible performance measures.
- 4.6 Consideration should also be given to appropriate review points in which the analysis of engineer and audit data gathered under the new model parameters might assist in refining the degradation thresholds to further improve accuracy in predictions.
- 4.7 The findings and proposals will be provided in January 2016 for the Board to consider before making any formal recommendations to Ofcom for endorsement. The Board acknowledges that further to analysis, at800 may conclude that the modifications are not tenable and will advise the Board accordingly.
- 4.8 The Board recognise the technical difficulty in refining the prediction model with so many variables and assumptions, which cover a myriad of considerations including

the quality and age of in-home DTT installations and aerial alignments, and thank the CTWG for their work.

5. AOB & Next Meeting

- 5.1 The Board agreed to cancel the meeting scheduled for 16 December; the next formal discussions will take place on Thursday 28 January 2016. A Board report will be provided in December as usual.

David Hendon

Chair

4G/TV Co-existence Oversight Board