



3G Rollout obligations

Statement and Consultation

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Section 1

Executive Summary

- 1.1 Ofcom received 68 responses to the Spectrum Framework Review: Implementation Plan (SFR:IP) published in January 2005. Section 10 of that consultation dealt with draft guidance on Ofcom's approach to the enforcement of the rollout obligation contained in the licences held by the existing 3G operators. Of the 68 responses, 9 specifically commented on the draft guidance.
- 1.2 The aim of this document is to provide guidance and greater regulatory certainty in relation to Ofcom's enforcement policy towards the rollout obligations in the 3G licences in the UK.
- 1.3 The document covers two principal issues. The first relates to how Ofcom intends to measure compliance with the rollout obligations and what, for the purposes of this measurement, it considers as the relevant benchmark against which rollout should be judged. This document is Ofcom's Consultation on this issue, which is covered in section 7 of the document.
- 1.4 It is important that stakeholders understand the technical basis for any measurement of rollout that has to be undertaken for the purposes of this regulation. The aim of this consultation is to seek views on the technical approach that Ofcom should take towards this task.
- 1.5 In summary, Ofcom is seeking to measure the extent to which 3G services are available to the UK population where they live. Such services should, under normal circumstances, be able to provide a range of applications such as voice, text, video and multimedia services for outdoor reception with speeds up to 384kbps. Coverage to meet this obligation is expected to be primarily urban/suburban rather than rural.
- 1.6 The second issue concerns Ofcom's approach to enforcement of the rollout obligation. It provides guidance on the approach that might be taken in the event of non-compliance and the process for enforcement. It takes account (among other considerations) of the interests of consumers. This document contains Ofcom's Statement on this issue, following the consultation in 2005.
- 1.7 Ofcom considers that it is timely to publish this document now as the issue of rollout is becoming more salient as the date for compliance comes closer. Ofcom's general approach is to seek to reduce regulatory uncertainty where to do so is consistent with Ofcom's statutory duties. It is not however possible for Ofcom to specify in advance how it would treat any particular case.
- 1.8 Ofcom expects all licensees to meet the requirements for rollout as stated in their licences by the end of 2007.

Section 2

Introduction

Background

2.1 An auction for Wireless Telegraphy Act Licences to use frequencies allocated to the provision of 3G mobile telephony services was held in the UK in early 2000. Following that auction, five licences were granted to the winning bidders. Those licences are now held by Hutchison 3G (UK) Limited, O2 (UK) Limited, Orange Personal Communications Services Limited T-Mobile (UK) Limited, and Vodafone Limited.

2.2 These licences authorise the establishment, installation and use of apparatus to use the specified frequency assignments until 31 December 2021. These licences contain a condition which requires the licensees to meet certain targets for rollout of their networks. Specifically, paragraph 4(a) of the Schedule to each licence provided:

“The Licensees shall install, maintain and use Radio Equipment (as specified in paragraph 10 of Schedule 1) in such a way as to enable the provision of, by not later than 31 December 2007, and to maintain thereafter, a telecommunications service by means of the Radio Equipment to an area where at least 80% of the population of the UK live.”

2.3 This condition is referred to in this document as the “rollout obligation”. The information memorandum at the time of the auction (paragraph 2.2.4) said that, *“the obligation reflects the need both to ensure the efficient use of the spectrum and provide a reasonable level of service to customers”*.

2.4 Full details of the 3G licence terms, the 2000 auction process and the information memorandum can be found at:
<http://www.ofcom.org.uk/static/archive/spectrumbauctions/main.htm>

2.5 Since the award of these licences, all licensees have invested in the development of 3G networks, and have launched services that are now commercially available.

Structure of this document

2.6 This document addresses two issues in relation to the enforcement of the rollout obligation.

2.7 The first issue concerns a matter on which Ofcom consulted in 2005, namely whether it would be appropriate to issue guidance on the regulatory action that might be taken in the event of non-compliance with the obligation, and if so the form that such guidance might take. Ofcom’s Statement on this issue is in sections 3-6.

2.8 The second issue concerns the technical methodology that might be used to determine whether or not there has been compliance with the rollout obligation. Ofcom’s proposals for consultation on this issue are set out in section 7.

- 2.9 These two issues are linked in the sense that both concern the regulatory approach to enforcement of the obligation. However, Ofcom considers that the reason for grouping them together in one document is convenience for stakeholders, rather than a material link between the relevant considerations in each case.
- 2.10 The licences awarded in 2000 are important as they form a key part of the regulatory authorisation regime for UK mobile communications. Ofcom considers that it is timely to publish this document now, as it was timely to undertake the consultation in 2005, given that the obligation comes into effect within the next 18 months and that it is desirable to reduce regulatory uncertainty where to do so is consistent with Ofcom's statutory duties.
- 2.11 Further, the services covered by the rollout obligations are of great importance for citizens and consumers in the UK. Increasing certainty about the obligations which apply to them will be of broad benefit to many consumers as well as for the companies operating the services. The obligations as written do not answer some obvious questions, such as the processes for evaluating compliance and for evaluating and applying sanctions in the event of non-compliance.
- 2.12 Ofcom's expectation is that the regulatory process of which this document forms part will serve to reduce the uncertainty that presently exists about these issues.

Section 3

The 2005 Consultation

- 3.1 In 2005 Ofcom published for consultation draft guidance on how Ofcom might approach the enforcement of the rollout obligation in the event of non-compliance. A consultation on this matter was contained in the *Spectrum Framework Review: Implementation Plan* (“SFR:IP”), published in January 2005.
- 3.2 The principal discussion of these issues within the SFR:IP was contained in Section 10. This section considered a number of issues including the following:
- why Ofcom considered that it might be useful to issue guidance on its approach to enforcement;
 - the potential sanctions for non-compliance under section 1(1) of the Wireless Telegraphy Act 1949 (“WT Act”);
 - Ofcom’s general approach to enforcing the obligations and how this might be implemented; and
 - Ofcom’s proposal for draft guidance.
- 3.3 A brief summary of each of these points is set out below. The full text of the SFR:IP can be found at: <http://www.ofcom.org.uk/consult/condocs/sfrip/>

Usefulness of guidance

- 3.4 In the SFR:IP, Ofcom stated that it had been approached by a number of parties seeking clarification of its likely approach to compliance with the rollout obligation. Ofcom noted that the existing regime for sanctions in relation to Wireless Telegraphy Act licences had been designed to deal with enforcement of spectrum-related licence conditions. These relate primarily to matters such as the technical engineering of radio systems, and the technical conditions needed to manage the risk of harmful interference to other users of the spectrum.
- 3.5 Ofcom noted that the regime for enforcing spectrum-related conditions was well-established, with practices and procedures that were well-known to the industry. But this regime appeared to be less relevant to the enforcement of non-spectrum conditions which had been imposed to secure other policy objectives, such as the rollout obligation.
- 3.6 Ofcom noted that a range of different considerations could be relevant to enforcement in the case of the rollout obligation. Ofcom therefore judged that, in the circumstances described in the SFR:IP, guidance on its approach to enforcement could be of benefit to the 3G licensees and to other parties, by reducing regulatory uncertainty.

Potential sanctions for non-compliance

- 3.7 The SFR:IP noted that as the rollout obligation is a wireless telegraphy licence condition any breach is governed by the provisions relating to the breach of any other wireless telegraphy licence condition under section 1(1) of the WT Act.
- 3.8 Transmission by a licensee which is failing to comply with its rollout obligation could therefore in principle result in prosecution for a criminal offence and/or revocation of the licence.
- 3.9 However, for reasons discussed in the document, the SFR:IP identified that different considerations might be relevant to decisions on enforcement action in the case of non-compliance with a rollout condition, compared to, for example, enforcement action against licensees causing harmful interference. It would be necessary to identify those considerations, and take them into account, before taking decisions on the appropriate enforcement action.

Ofcom's general approach to enforcing the obligations

- 3.10 The SFR:IP stated clearly that Ofcom expected all licensees to meet the rollout obligation included in their licences by the end of 2007.
- 3.11 The consultation document noted that Ofcom expected to begin the process of assessing compliance towards the end of 2007, so that it would be in a position to make a decision on whether or not there was compliance in early 2008. It said that if Ofcom identified any non-compliance it would expect to undertake a detailed investigation into this, and identified a number of points that might be taken into account in this assessment.

Ofcom's proposed draft guidance on enforcement action

- 3.12 The SFR:IP consultation set out some draft guidance, for comment, on the approach that Ofcom might take to enforcement. However, the SFR:IP noted that Ofcom could not fetter its discretion in relation to such action, and that all relevant considerations would need to be taken into account at the time, in order to determine the appropriate steps.
- 3.13 In brief the draft guidance in the SFR:IP suggested that:
- There was a possibility, in principle, of using criminal sanctions in the event of non-compliance. However, Ofcom considered that these were not likely to be an appropriate means of achieving the objectives that the rollout obligation was designed to secure;
 - Revocation of a licence would only appear to be proportionate in serious cases of non-compliance. Such a serious case could exist if a licensee had not rolled out a network to any significant extent, was making little use of the spectrum, and had no significant subscriber base;
 - By contrast, where a licensee had rolled out a network to a significant extent, and could clearly demonstrate to Ofcom a clear commitment to remedy the infringement, Ofcom would be likely to consider revocation a disproportionate step.

- In assessing the commitment of an operator to remedy any shortfall, Ofcom would expect to see evidence that the licensee could and would discharge the obligation in a timely manner. Such evidence might include a detailed programme for achieving compliance with technical and financial approval at Board level, an appropriate timetable for achieving compliance including specific target steps, and an agreed schedule for monitoring performance.
- 3.14 The SFR:IP sought views on whether it would be helpful for Ofcom to issue guidance on its approach to enforcement of the rollout obligation, and on the contents of the guidance proposed.
- 3.15 Section 4 discusses the responses received to these points.

Section 4

Responses to the SFR:IP, Section 10

- 4.1 Nine responses to the SFR:IP commented specifically on the matters discussed within Section 10. Eight of these responses have been published on the Ofcom website, while one company requested that its response should remain confidential.
- 4.2 This section summarises these responses. The full text of the non-confidential responses can be found at:
<http://www.ofcom.org.uk/consult/condocs/sfrip/sfip/responses/>
- 4.3 Ofcom asked two specific questions in the relation to this matter, viz:
 - 10.1 Do you agree that guidance from Ofcom on its approach to enforcement of the 3G rollout obligation would be helpful?
 - 10.2 What are your views on Ofcom's proposed guidance on enforcement action?

Overview of responses

- 4.4 The responses received to the consultation expressed widely divergent views on the matters raised. A number of responses also commented on matters that were not the subject of the consultation.
- 4.5 Six respondents commented specifically on whether it would be useful for Ofcom to issue guidance on its approach to enforcement. Of these, four said that they considered that issuing guidance would be helpful, albeit in some cases they wished Ofcom would do more to reduce regulatory uncertainty. One respondent stated that it opposed such guidance, that it considered guidance of this kind conferred a discriminatory benefit on its competitors, represented a significant change in policy, and altered in a material way the terms of the auction held in 2000, as well as having other adverse consequences. One respondent commented on the matter, but said that it was neutral as to whether issuing guidance would or would not be helpful.
- 4.6 A smaller number commented directly or indirectly on the content of the guidance proposed. One respondent commented to the effect that it considered the guidance should in time be developed further, as it was incomplete, while noting the need for enforcement action to be proportionate. Two were generally supportive of the content of the proposed guidance, while one of these requested additional information on the likely process and timescales for reviewing and ensuring compliance. One respondent suggested that no enforcement action should be taken in the event of non-compliance, while another encouraged Ofcom to take strong action to ensure that spectrum is used and not hoarded.
- 4.7 A number of responses commented on matters that were not directly the subject of consultation. These included one response providing comments that were critical of auctions as a means of assigning spectrum. Two responses proposed that the obligation should be removed, for a variety of reasons, such as that it was no longer proportionate, and that it was

inconsistent with the wider framework for spectrum policy. Other responses implied or stated that the obligations should be firmly maintained.

- 4.8 The following summarises in more detail the public responses from BT Group Plc, Hutchison 3G (UK) Limited, Kingston Communications (Hull) Plc, O2 (UK) Ltd, Orange Personal Communications Services Limited, T-Mobile (UK) Limited, the UMTS Forum and Vodafone Limited and one confidential response to Section 10:

BT Group Plc

- 4.9 In response to questions 10.1 and 10.2 BT suggested that Ofcom should be as clear as possible with regard to its approach in these matters by providing regulatory clarity and certainty. It was felt that this would promote an even playing field amongst competitors, who might otherwise come to different conclusions about likely actions and thus take different decisions.
- 4.10 BT's view was that there were a number of principles which needed to be upheld by the regulator, including transparency, proportionality, and acting in a manner that was non-discriminatory and objective. BT also considered that any sanctions imposed by the regulator should be appropriate for the market conditions.
- 4.11 BT agreed with Ofcom that the effect on customers was a relevant consideration and that revocation of a licence would appear to be disproportionate, in all except the most blatant case of non-compliance. BT felt that the draft guidance was a reasonable start to clarifying Ofcom's position but that it did not stand up as a standalone document in its current form. Further guidance would be necessary nearer the date for compliance.

Hutchison 3G (UK) Limited

- 4.12 H3G did not believe that guidance was necessary and did not understand why Ofcom was considering guidance which may be perceived to amount to relaxation of rollout obligations. H3G felt there were significant issues for Ofcom, with respect to the validity of the draft guidance, under the Communications Directives (in particular Article 8(2) of the Framework Directive, which requires Ofcom to ensure that there is no distortion of competition) as implemented in the UK and the proposed guidance was inconsistent with the policy objectives of the licence condition itself in promoting network rollout.
- 4.13 H3G considered that Ofcom's draft guidance on the enforcement of rollout obligations constituted a change of policy regarding when obligations must be met. H3G queried why Ofcom was changing its signal to the market in regard to rollout and felt that this objective was liable to be undermined to the detriment of consumers if Ofcom issued guidance that was perceived to be a relaxation of the rollout obligation.
- 4.14 H3G felt Ofcom should clearly state that it expects the obligations made at the time of the 3G auction to be met and not send mixed messages to the market, which they felt would put them at a disadvantage, especially as they have already met this obligation at considerable expense. H3G felt that the draft guidance provided by Ofcom, created expectations on the part of the

other operators, and provided a discriminatory benefit to the other 3G licence holders.

- 4.15 By Ofcom indicating at this early stage in the rollout process that the licence requirement will only be seriously enforced in the event of a “serious” breach H3G felt that this would provide other operators with a valuable flexibility in planning their investment in 3G from which H3G could not benefit.
- 4.16 H3G considered that providing greater regulatory certainty would not maintain competitive parity between 3G operators. H3G believed that the proposed guidance would unnecessarily provide value to the other 3G operators, was not good public policy, and would have the adverse policy consequences of undermining investment incentives and the credibility of future auctions.
- 4.17 H3G believed that 3G operators should be expected to meet the obligations undertaken at the time of the auction and that enforcement action should be considered at the relevant time in the light of all available information. H3G viewed Ofcom’s proposed guidance as effectively changing a key element of the overall package presented at the time of the auction.
- 4.18 H3G felt the potential penalties for a licence breach were already made clear under the Wireless Telegraphy Act and the possibility of revocation was clearly indicated in the Information Memorandum. H3G believed this explained clearly to 3G licence holders the expectations that they could have as to timescales in which a licence breach would be considered.

Kingston Communications (Hull) Plc

- 4.19 Kingston Communications noted the issues that Ofcom raised in relation to the provision of guidance and enforcement of the rollout obligation. It felt that consideration should be given to the concept of SMP in the mobile world to assist in making a decision. Ofcom could then evaluate trading conditions as a relevant reason for non-compliance with obligations, and establish realistic re-scheduling options to those with SMP, but build in significant penalties beyond that date.

O2 (UK) Ltd

- 4.20 In response to the questions raised by the SFR:IP consultation, O2 stated that it was helpful to understand what proportionate measures Ofcom intends to take if an operator fails to comply with its licence obligations. O2 also stated that, as an interim measure, the draft guidelines appeared, for the present, to be a pragmatic answer to questions of regulatory approach that were left unanswered by the 3G licence auction.
- 4.21 O2 also commented on other matters that were not the subject of proposals in the SFR:IP consultation, in particular the case for removing the rollout obligation. In particular, O2 queried Ofcom’s continued insistence on retaining the rollout obligation given the recommendations of Cave Report, the Government’s subsequent response and its decision to remove “use it or lose it” conditions from the 28GHz licences. O2 felt Ofcom had readily adopted one recommendation of the Cave Report but was unwilling to deal with another recommendation, despite its stated intention and allusions to addressing this issue in the SFR:IP consultation.

- 4.22 O2 considered that given the removal of rollout conditions from other licence classes, and the Cave Report, the 3G operators now enjoyed a legitimate expectation that the rollout obligations would in time be removed from the 3G licences as well. It stated that the only relevant question was when this would happen.
- 4.23 O2 argued that rollout obligations were not required and that operators should be able to determine the scale and speed of rollout based on their own commercial judgement. In light of the broader issue of undue discrimination O2 expected that the proposed guidance would be superseded by a future decision to remove the rollout obligations from the 3G licences when further licences allowing the operation of 3G services are auctioned.
- 4.24 O2 noted that the rollout obligation is not technology neutral, and would become meaningless with the advent of trading and liberalisation, as liberalisation for the current 3G licences would allow a total circumvention of the obligation. The introduction of trading for 3G core band licences would mean that operators would be able, should they so wish, to trade spectrum to other potential users in areas where they had no wish to use it.
- 4.25 O2 queried if Ofcom intended to stipulate how it views such spectrum trades maintaining their compliance with the rollout obligation and if so, would this be a restraint on trade and a throwback to “command and control”.
- 4.26 O2 felt that it would be prudent for Ofcom to consult generally on the non-spectrum licence conditions for new and existing licences, in terms of the tests set out in §1D(9) of the WT Act 1949, prior to any future auction of spectrum internationally identified for use by IMT-2000 systems

Orange Personal Communications Services Ltd

- 4.27 Orange stated that it was neutral on whether guidance is issued and trusted that Ofcom would ensure that any guidance would be legally sound.
- 4.28 Orange noted that rollout obligations were possibly more relevant under the previous ‘command and control’ environment for management of spectrum. Under a more market-based approach, and assuming an efficient market in spectrum, any operator not using their spectrum could realise the value of their holding by means of a spectrum trade.
- 4.29 Orange felt that care was needed before any enforcement action was taken, and a clearer definition of property rights must be established first.

T-Mobile (UK) Ltd

- 4.30 In relation to the questions raised in the SFR:IP consultation, T-Mobile agreed that, to the extent that rollout obligations are maintained, guidance on Ofcom’s approach to their enforcement is desirable. In relation to the content of the draft guidance, T-Mobile sought greater clarity on the length of time a licensee might be permitted to achieve compliance. While T-Mobile was broadly supportive of Ofcom’s approach (in the event that the rollout obligations were maintained), it stated that it would welcome and expect further information and consultation on the technical parameters of the proposed 3G planning tool.

- 4.31 T-Mobile also commented on matters that were not raised directly in the consultation. In particular, T-Mobile noted that it considered the existing coverage obligations and the date on which they are to be met, were not proportionate and thus were contrary to EU and UK law. T-Mobile argued that the obligations were included in the 3G licences when auctioned on the basis that commercial 3G services would commence at the beginning of 2002, and that circumstances had changed materially since the auction.
- 4.32 T-Mobile also expressed concern about discriminatory treatment, which would disadvantage mobile operators (in particular existing 2G operators) compared to others. It was concerned that Ofcom envisaged maintaining the 3G rollout obligations while planning to relax or remove licence conditions from other parties' licences, through liberalisation. It also noted an inconsistency, as Ofcom now recognised that pursuing public policy goals such as coverage through spectrum licences was not desirable and Ofcom did not plan to impose further rollout obligations in relation to spectrum being released in the future
- T-Mobile considered that Ofcom's primary objective should be to remove the rollout obligation as soon as possible. Failing this, Ofcom must ensure that existing mobile operators would not be disadvantaged in relation to other operators. It should do so by delaying the ability of new operators to offer 3G services until after the existing operators have been given a sufficient period to recoup the cost of meeting the policy objectives
- 4.33 T-Mobile felt the removal of the rollout obligation would be in line with the Cave Report recommendation that: "As market mechanisms are developed further, this should allow the RA to remove licence restrictions (such as requirements for service rollout) which had been designed to mimic the incentives operating in more competitive markets".

UMTS Forum

- 4.34 The UMTS Forum response implied that the outcome of the 3G auctions in Europe illustrated how little auctions contribute to efficient spectrum use. It felt that in light of the auction outcome it seems obvious that no penalty should be imposed for non-compliance.

Vodafone Limited

- 4.35 Vodafone considered that the draft guidance that Ofcom offered was helpful. Vodafone noted that unless good reasons exist to support a different conclusion then Ofcom should "expect all licensees to meet the requirements of rollout stated in their licenses by the end of 2007".

Confidential Response

- 4.36 The confidential respondent suggested that Ofcom should avoid taking action that would support the domination of the UK mobile industry by 3G at the expense of other approaches. The respondent was in favour of strong action by Ofcom and that Ofcom should ensure (by force if necessary) that spectrum is used, rather than hoarded. They would like to see a strong flexible regulator.

Section 5

Analysis and conclusions

5.1 This Section considers the comments made in response to the 2005 consultation, and sets out Ofcom's response to those comments. It takes into account such additional evidence and consideration as has become available during the period since that consultation. It then reaches conclusions on the matters that were the subject of the 2005 consultation.

5.2 It is structured as follows:

- first, a consideration of responses to the questions asked in the 2005 consultation;
- second, a consideration of other issues raised in response that were not the subject of the 2005 consultation;
- third, conclusions.

Would guidance on the approach to enforcement of the rollout obligation be helpful?

5.3 The first question that was asked in the SFR:IP consultation was whether it would be helpful for Ofcom to issue guidance on its approach to enforcing the rollout obligation.

5.4 As noted in section 4, of those respondents who commented on this, most agreed that guidance of the kind proposed in the consultation document would be helpful, as it would give more certainty to the market

5.5 However, one respondent, H3G, argued strongly against issuing any such guidance. H3G identified a number of reasons for objecting to this proposal. These included the following:

- There was no need for such guidance. The potential penalties for a breach of a licence condition were already clear in the Wireless Telegraphy Act, and the possibility of revocation of a licence was also indicated in the Information Memorandum published before the 2000 auction. The Information Memorandum was clear in its explanation to 3G licence holders of what expectations they can have as to timescales in which the licence breach will be considered;
- The guidance could be perceived as a relaxation of the rollout obligation. This was inconsistent with the policy objective of the licence condition itself, which was to promote network rollout. This could be to the detriment of consumers. Also the draft guidance on the enforcement of rollout obligations constituted a change of policy regarding when obligations must be met. H3G considered that Ofcom should state clearly that it expects the obligations of the licensees to be met and not send mixed messages to the market. The proposed guidance would signal to the market that the obligation was being treated less seriously than before;

- The proposal to issue guidance would effectively change a key element of the package put in place at the time of the 2000 auction. This was not justified, and would reduce the credibility of the terms proposed in future spectrum auctions. Also the proposal to issue guidance would put H3G at a disadvantage, as they have already met the obligation, at considerable expense. This would confer a discriminatory benefit to the competitors to H3G, by giving them valuable flexibility in planning their investment. There would be significant issues with respect to the validity of the draft guidance under the Communications Directives, in particular Article 8(2) of the Framework Directive, which requires Ofcom to ensure that there is no distortion of competition.

5.6 Ofcom has considered carefully all comments made by H3G. Ofcom's response on these issues is set out below.

Need for guidance

- 5.7 H3G argued that there was no need for such guidance. The potential penalties for a breach of a licence condition were already clear in the Wireless Telegraphy Act, and the possibility of revocation of a licence was also indicated in the Information Memorandum published before the 2000 auction. The Information Memorandum was clear in its explanation to 3G licence holders of what expectations they can have as to timescales in which the licence breach will be considered
- 5.8 Ofcom does not agree that there is no need for any guidance, or any benefit to be had from a reduction in regulatory uncertainty in relation to the approach that it will take towards enforcement of this obligation.
- 5.9 The five WT Act licences authorise the provision of the third generation of mobile services throughout the UK. They form a key part of the regulatory authorisation regime for UK mobile communications. The rollout obligation is an important part of the regulatory landscape and the date for meeting the obligation is approaching. The existence of this licensing requirement clearly could have a bearing on the validity or retention of spectrum licences for major telecommunications networks and is therefore of real concern to companies. Regulatory certainty is therefore desirable, as far as possible, as this will affect stakeholders' confidence, and investment and other decisions that the companies will make routinely throughout the lifetime of the licences.
- 5.10 There is also a strong consumer interest in the successful delivery of 3G services. The licensed networks have many existing customers and Ofcom believes that greater certainty about these licences will be beneficial to them, consistent with Ofcom's core statutory duty to further the interests of citizens and consumers.
- 5.11 Ofcom cannot fetter its discretion in relation to the enforcement action which it will take in any particular case. But Ofcom believes that additional regulatory clarity on enforcement, the sanctions process and compliance measurement is desirable because:
- The WT Act provides Ofcom with a very wide degree of discretion when making decisions about the exercise of its wireless telegraphy licensing functions, including enforcement functions. It is appropriate for Ofcom to give

guidance about sanctions to add clarity about factors relevant to the exercise of discretion;

- The rollout obligation itself is clear and to the point but rather terse. It does not give details about how compliance should be measured nor what process will be followed if the obligation is not met. Such legitimate questions naturally arise from a reading of the obligation. It is entirely understandable for stakeholders to seek and for Ofcom to wish to provide clarity on these issues as the deadline for compliance approaches.

- 5.12 As explained in paragraphs 10.6 – 10.8 of the SFR:IP there is a possibility of criminal sanctions for breach of a licence conditions. Ofcom considers that criminal sanctions may not be an appropriate means to secure the objectives which the rollout obligations were designed to achieve. Further, most provisions contained in WT Act licences that raise potential enforcement issues relate to the technical management of the radio spectrum. The key consideration in this respect is to manage the potential for licensees to cause harmful interference to other users of the spectrum. In this context, there are well-established practices and procedures for securing compliance by licensees. These procedures typically begin with technical discussions between regulator and licensee. Many issues are resolved informally without the need for a formal notice to secure compliance. In the event that informal procedures do not secure compliance, there is a procedure for notifying the licensee of the intention to revoke or vary the licence, and then giving a period for representations (which shall not be less than a month).
- 5.13 By contrast, Ofcom considers that the enforcement of a rollout obligation which has been imposed for different public policy reasons raises different considerations, which warrants some explicit discussion of the approach that should be taken by the regulator. These different considerations include (for example) the potential effect of licence revocation on the customers of a non-compliant licensee, and the policy objectives underlying the obligation. Moreover, there is a relative lack of experience in relation to the enforcement of this type of “non-spectrum” licence condition. The practices and procedures for managing the risk of harmful interference are generally well understood by licensees, as these have been central to regulation of the radio spectrum for many years
- 5.14 Ofcom therefore continues to consider that the provision of some guidance on its approach to enforcement of the rollout obligation should be beneficial to licensees, consumers and other stakeholders. At the same time, it is important to stress that no guidance can fetter the discretion of the regulator: decisions on the appropriate action in the event of non-compliance should be taken at the time, in the light of a detailed investigation of the relevant factors, and cannot be taken in advance.
- 5.15 Ofcom does not agree with H3G’s view that the 3G auction Information Memorandum (IM) sufficiently reduces regulatory uncertainty in this context for relevant parties. The relevant section of the IM (Section 2.2.2) does not address in any detail how compliance should be measured, the process for determining if a breach has occurred, nor the sanctions that would be appropriate in the event of non-compliance with the rollout obligation (or other licence conditions). Rather, Section 2.2.2 deals with the process for putting a proposal to revoke or vary a licence into effect, once the decision to revoke or vary has been taken.

- 5.16 Ofcom therefore now seeks to give guidance about how compliance should be measured in order to establish if there is any breach of the rollout obligation in the first place.
- 5.17 In addition, since the IM was published (1 November 1999), the legislation has changed with the passing of the Communications Act 2003. This amended section 1E of the WT Act and transferred WT Act functions to Ofcom. The current process in section 1E is similar in outline to the earlier legislation but there are differences in relation to process. The changes were introduced to bring UK law into line with Article 10 of the EU Authorisation Directive 2002/20/EC. That article requires Member States to take appropriate and proportionate measures aimed at ensuring compliance. While administrative law requires public authorities generally to act in a proportionate manner, these are new specific requirements of European law applying to rights to use of radio frequencies from July 2003 when the Directive entered into force.
- 5.18 Under the WT Act licences, a material breach of a licence term is required to revoke the licence rather than any simple breach. The need for materiality in relation to a breach of the rollout obligation sits alongside the new EU requirements in the Directive to apply appropriate and proportionate sanctions. Accordingly guidance on measuring compliance, proportionality of sanctions and the process which may follow from non-compliance is entirely appropriate.
- 5.19 Ofcom notes that most respondents to the consultation who commented on this point favoured the provision of guidance on the approach that might be taken by the regulator in the event of non-compliance. This strengthens Ofcom's view that guidance would be beneficial in order to reduce regulatory uncertainty.
- 5.20 Ofcom therefore concludes that it should proceed with guidance on the action that might be taken in these circumstances, while stressing that this is guidance only, and that decisions on enforcement action will be taken at the appropriate time in light of all relevant information.

Guidance and policy

- 5.21 H3G argued that guidance could be perceived as a relaxation of the rollout obligation. This was inconsistent with the policy objective of the licence condition itself, which was to promote network rollout. This could be to the detriment of consumers. H3G also argued that the draft guidance on the enforcement of rollout obligations constituted a change of policy regarding when obligations must be met. H3G considered that Ofcom should state clearly that it expects the obligations of the licensees to be met and not send mixed messages to the market. The proposed guidance would signal to the market that the obligation was being treated less seriously than before.
- 5.22 Ofcom does not agree that the guidance constitutes a relaxation of any kind in the rollout obligation. Ofcom does not agree that it constitutes a change of policy, nor does Ofcom agree that the guidance is inconsistent with the policy objective underlying the obligation.
- 5.23 Ofcom stated clearly in the SFR:IP consultation (and states again clearly in this document) that it expects licensees to meet the terms of the rollout

obligation contained in their licence. It is a matter for licensees to comply, but Ofcom considers that its intention in this respect has been given added force (rather than diminished) by Ofcom explaining in more detail how it intends to approach the task. (The issue raised by some respondents as to whether the rollout obligation should be removed by way of licence variation is a separate matter, addressed below.)

- 5.24 Ofcom therefore does not accept that the guidance constitutes a change of policy regarding when the licence obligations must be met. Ofcom considers that it is consistent with the policy objectives underlying the rollout obligation to explain in more detail how Ofcom considers compliance should be measured, and to provide guidance on the regulatory approach to non-compliance and process.

Impact of guidance

- 5.25 H3G argued that guidance would effectively change a key element of the package put in place at the time of the 2000 auction. This was not justified, and would reduce the credibility of the terms proposed in future spectrum auctions. The proposal to issue guidance would also put H3G at a disadvantage, as they have already met the obligation, at considerable expense. This would confer a discriminatory benefit to the competitors to H3G, by giving them valuable flexibility in planning their investment. There are significant issues with respect to the validity of the draft guidance under the Communications Directives, in particular Article 8(2) of the Framework Directive, which requires Ofcom to ensure that there is no distortion of competition.
- 5.26 Ofcom does not agree that issuing guidance would change a key element of the arrangements that existed at the time of the 2000 auction. As discussed above, little was said at the time of the 2000 auction about the consequences of non-compliance with the obligation. Section 2.2.2 of the IM discussed the process (which has since been changed) under which licences might be varied and/or revoked, but it said nothing about (for example) the circumstances under which revocation might be a proportionate step.
- 5.27 Ofcom considers that it is an appropriate exercise of its discretion to seek to reduce areas of unnecessary regulatory uncertainty for the reasons explained above. It was clear at the time of the 2000 auction that the use of the radio spectrum, and the provision of telecommunication services, were regulated activities, and that the regulatory environment could reasonably be expected to develop over time. Ofcom considers that there is therefore no inconsistency between issuing guidance on the matters on which it has consulted, and the framework that existed at the time of the 2000 auction.
- 5.28 Ofcom notes H3G's claim that the provision of guidance would confer a discriminatory benefit on its competitors. Ofcom does not accept this. H3G stated in its response that it had met the requirements of the rollout obligation in December 2004 at considerable cost, shortly before the SFR:IP consultation, and approximately three years before the obligation came into effect. H3G could not therefore benefit from any additional flexibility in relation to the timing of its investment after Ofcom's draft guidance, unlike other 3G operators.

- 5.29 Ofcom welcomes H3G's stated achievement in rolling out its network. However, Ofcom considers that H3G's decision to invest in its network ahead of the date required by the rollout obligation was a commercial matter for H3G. Within a common set of licence conditions and other regulatory requirements, each of the 3G licensees is likely to have made different commercial decisions on its approach to deployment and other matters (such as marketing and content strategies). It is possible that regulatory actions may affect these different operators in different ways depending on their commercial behaviour. It is not, however, a requirement of non-discrimination that any action by Ofcom should have the same effect on each operator given its commercial position. This would be wholly infeasible and confuse decisions that are properly commercial (and for the operators) with those that are properly regulatory (and for the regulator).
- 5.30 The relevant requirement in this case is, rather, that regulation should be applied in a consistent manner to each party. Ofcom's intention in that respect is to take the same approach to enforcement of the rollout obligation with all 3G licensees.
- 5.31 Ofcom believes that giving guidance on the obligations is appropriate and desirable for the reasons set out above. The question of whether there could be any distortion of competition does not arise given that the obligations are not being changed or relaxed and that Ofcom's approach will be applied equally to all licensees. As mentioned elsewhere in this document Ofcom is not proposing to change or remove the obligations.

Views on the draft guidance

- 5.32 The second question asked in the SFR:IP consultation on this matter asked for views on the proposed draft guidance.
- 5.33 Ofcom received relatively few comments directly on this. Most respondents who did comment seemed to agree that action would need to be proportionate to the shortfall, and should recognise that revocation of licences would be proportionate only in serious cases of non-compliance. The guidance given in the SFR:IP about the topics that would be taken into account in determining the appropriate enforcement action also appeared to be broadly supported by respondents.
- 5.34 Most respondents, including H3G, also agreed that enforcement action would need to be decided at the relevant time in the light of available information.
- 5.35 Some more detailed comments were also made and these are discussed below.
- 5.36 Orange suggested that clear definitions of property rights must be established before any enforcement action is taken. However, it is not clear what difference such a clearer definition would make to the enforcement action that Ofcom might take: the obligation of the licensees is clear on the face of their licences and whatever clarification or liberalisation of property rights might be possible, compliance with the obligations remains a fundamental requirement.
- 5.37 T-Mobile asked for additional guidance on the length of time that a licensee might be permitted to achieve compliance. This is not however a point on which Ofcom considers that it should give any guidance: Ofcom expects all

licensees to comply with their obligations, and the appropriate action in the event of non-compliance will need to be judged at the time in the light of all relevant circumstances. Ofcom would not expect any period to be unduly lengthy given the notice that licensees have had of the requirements.

- 5.38 T-Mobile and BT also asked for additional information about the basis on which compliance would be measured. Ofcom agrees that it would be helpful to set out the detailed criteria on which the measurement should take place, and this document makes proposals for consultation about what these should be.

Other issues raised in responses

- 5.39 Some respondents raised other issues that were not the subject of the consultation. In particular, T-Mobile and O2 argued for various reasons that the rollout obligation should not be maintained, and should (now or in the future) be removed.
- 5.40 Ofcom does not consider that it is appropriate to seek to address this issue in detail in this statement. The rollout obligation is contained in the licences of T-Mobile, O2 and the other parties that acquired the licences auctioned in 2000. Ofcom is not presently planning to make any proposals to vary the licences to remove the obligation.
- 5.41 There are however some points made by O2 and T-Mobile on which it might be useful to comment briefly.
- 5.42 In particular, O2's response states that 3G operators have a legitimate expectation that the rollout obligations will be removed in light of the Government's acceptance of Professor Cave's recommendations, and the removal of rollout obligations in the 28 GHz licences, and that therefore the only relevant question is when this will happen.
- 5.43 Ofcom does not agree that the 3G operators have a legitimate expectation as described by O2. No decision has been made or undertaking given to remove the rollout obligations from the 3G licences, and a range of considerations would need to be taken into account before a decision could be made on this matter if, for example, there were a request for licence variation. These might include (without limitation) the continued proportionality of the obligation, whether or not there might be issues of discrimination vis a vis other comparable licensees, and the effects on policy objectives relating to the efficiency of spectrum usage and the interests of consumers. It seems likely that a public consultation would be appropriate given the wider interest in the issue.
- 5.44 In the absence of any undertaking or decision to remove the licence obligation in the 3G licences, no legitimate expectation can exist as suggested by O2.
- 5.45 O2 and T-Mobile also argued that it would be discriminatory for Ofcom to retain the rollout obligation in the light of the removal of the "use it or lose it" condition on licensees in the 28 GHz band. Ofcom's view is that the circumstances of the 3G licences and the 28 GHz licences are different in numerous respects; and that its decision to amend one class of licence creates no precedent in the very different circumstances of the other.

Section 6

Guidance on enforcement

Enforcement options

- 6.1 The Wireless Telegraphy Act 1949 is subject to criminal law and it is an offence to operate a radio system otherwise than in accordance with a valid licence or specific exemption from licensing.
- 6.2 Ofcom has already made it clear, in the draft guidance published in the SFR:IP, that the sanctions it applies where the rollout obligations are not met must be proportionate to the scale and severity of the shortfall, and take into account all the circumstances at the time. Ofcom is also responsible for furthering the interests of consumers and therefore is anxious to avoid unnecessary disruption to 3G customers in the way in which it enforces the obligation. Revocation of a licence is likely to disrupt customers severely and Ofcom should avoid it if other remedies are available and appropriate.
- 6.3 The draft guidance published in the SFR:IP described in outline the approach to sanctions in the event of a shortfall in compliance. This draft guidance was intended to provide greater clarity about Ofcom's intentions, while not fettering its discretion to exercise all its powers and to take all other relevant information into consideration in the circumstances of the time. A less detailed description would offer little information about the sanctions regime and could encourage some MNOs to assume that Ofcom would not take seriously the enforcement of the obligations. More detail would limit Ofcom's discretion at the time.
- 6.4 This document confirms the guidance on sanctions offered in the SFR:IP. It does so with the addition of some small textual amendments following consultation. There is also an expanded discussion of the options that exist for sanctions in the event of non-compliance and of the procedure that would be followed by Ofcom.

Ofcom's general approach to enforcing the obligations

- 6.5 Ofcom expects all licensees to meet the requirements for rollout stated in their licences by the end of 2007. However, in the event that these were not achieved Ofcom sets out guidance on its likely approach to dealing with such a situation.
- 6.6 Ofcom needs to consider any decision within the context of its legal obligations. In particular Ofcom would be required to act reasonably and to take all relevant considerations into account in relation to dealing with any non-compliance with the rollout obligation.
- 6.7 As the rollout obligation is not due to be satisfied until the end of 2007, no sanction could therefore be imposed before that date. However, Ofcom anticipates it will begin the formal process of assessing compliance towards the end of 2007 so that it would be in a position to make a decision on any non-compliance early in 2008.

- 6.8 Ofcom will carry out a detailed investigation into any non-compliance to assess both the magnitude of problem and the reasons why it has occurred. Such an investigation is likely to include an assessment of the following factors:
- Any stated reasons for non-compliance of an operator with the 80% requirement in the rollout obligation;
 - The extent of non-compliance and the anticipated timescale to remedy any deficiency;
 - The number of subscribers of any non-compliant licensee;
 - The compliance rates of other operators;
 - The capital investment ratio of compliant/non-compliant licensees;
 - The market environment pertaining at the time of investigation;
 - Any technology issues that may be relevant, including their applicability to compliant/non-compliant operators respectively.

Ofcom's guidance on enforcement action

- 6.9 It is not possible for Ofcom to fetter its discretion regarding any future action it may take if a licensee does not comply with the rollout obligations. The appropriate action would need to be judged at the time in the light of all relevant considerations and circumstances.
- 6.10 Ofcom will need to assess whether a licensee has met the 80% of population coverage requirement. Ofcom proposes to make such an assessment using data provided by the 3G operators of their commissioned 3G base stations as inputs to its calculations (subject to verification as set out in section 7).
- 6.11 There is a possibility of criminal sanctions for breach of a licence condition. However Ofcom considers that criminal sanctions may not be an appropriate means to secure the objectives which the rollout obligations were designed to achieve. It is also relevant that non-compliance with rollout obligation would not involve harmful interference to other users of the radio spectrum: which generally is the primary driver behind the application of criminal sanctions. In any event Ofcom is unable to prosecute for an offence relating to the contravention of terms of a wireless telegraphy licence until it has first served a conformity notice under section 172 of the Communications Act 2003. The notice must require the licensee to comply with the particular licence term or make representations about the matters notified, both within a specified period. Ofcom could not prosecute if a licensee complies or makes representations that convince Ofcom that prosecution is not appropriate.
- 6.12 Revocation of a 3G licence for non-compliance with the rollout obligation would only appear to be proportionate in serious cases of non-compliance.
- 6.13 Such a serious case could exist if a licensee had not rolled-out a network to any significant extent, was making little use of the spectrum and had no significant subscriber base. By contrast, where a licensee had rolled-out a network to a significant extent and could clearly demonstrate to Ofcom that

they have evidence of a clear commitment to remedy the infringement of their rollout licence condition in a timely way, Ofcom is likely to consider that revocation would be a disproportionate sanction to impose. That is particularly the case where an operator demonstrates that it has made substantive progress towards compliance and that it will be able to comply within a specified reasonable period.

- 6.14 In assessing the commitment of an operator to remedy a shortfall, Ofcom would expect to see evidence that the licensee would and could discharge the rollout obligation in a timely manner. Appropriate evidence may include producing a detailed programme for achieving compliance that has technical and financial approval at Board level with an appropriate timetable for reaching the required level of network coverage and including specific target steps to achieve compliance with an agreed schedule for monitoring performance. It may be appropriate for Ofcom to consider varying the licences of non-compliant licensees to reflect an agreed timetable for achieving compliance.
- 6.15 In addition to the matters covered in the SFR:IP and confirmed above, Ofcom believes that there may also be options for sanctions other than simple revocation. Depending on the particular circumstances of any individual case other options might also be considered, such as a reduction in the licence term, and partial revocation, i.e. reclaiming part of the spectrum assignment. Decisions about whether options such as these which fall short of simple revocation might be suitable would be taken in the light of all of the relevant circumstances at the time.
- 6.16 In addition to the matters covered in the SFR:IP and confirmed above Ofcom adds for the avoidance of doubt that in the event of non compliance, before putting any proposed sanction that would involve revocation or variation into effect, Ofcom is required to follow the procedure for giving notice set out in Section 1E of the WT Act.

Section 7

How Ofcom intends to measure compliance

Evaluation of performance against obligation

- 7.1 This section of the document forms a consultation. Ofcom is seeking the views of respondents on the content of this section and the questions that are presented.
- 7.2 This section discusses in more detail the methodology Ofcom proposes to use to determine the degree to which MNOs meet the obligation to “provide a telecommunications service by means of the Radio Equipment to an area where at least 80% of the population of the UK live”.
- 7.3 The description of the obligation contained within the 3G licences gives Ofcom considerable freedom to choose the methodology and detailed parameters for evaluating compliance. The parameters and the measurement methodology is important for the MNOs and will be essential so that all parties can understand what is required to reach compliance with the obligation.
- 7.4 This document is separate from the published Ofcom Report “The Communications Market: Nations and Regions”¹. That document examines availability, take-up and consumption of communications services across the UK, exploring how citizen and consumer interests are being met and how this picture varies by each of the Nations and Regions. Its consideration of 3G coverage is different from that set out in this document among other reasons because it is focused on geographic availability rather than the population coverage issues which are considered here.

Basic methodology to use

- 7.5 There are four basic methodologies that could be employed:
- Engineering analysis by Ofcom;
 - Physical field strength measurement by Ofcom or an agent;
 - Combination of the above two approaches;
 - Operator self-declaration (either based on prediction, measurement or a combination).
- 7.6 Ofcom has access to planning tools which will enable it to perform an engineering analysis. Locations of base stations and other technical details can be provided by the operators.

¹ http://www.ofcom.org.uk/research/cm/nations/nations_regions/#content

- 7.7 Physical field strength measurements are also possible but an extensive sample is likely to be needed to make statistically significant predictions and this might be costly and resource intensive.
- 7.8 A combination of an engineering analysis which is verified by a sample of field strength measurements might be appropriate, particularly if some of the specific site data needed to conduct a robust analysis is not readily available.
- 7.9 Operator self-declaration is also possible but the methodology used would need to be agreed with the operators in advance to ensure sufficient uniformity of approach. Additionally the results of self-declaration would probably need to be open to independent verification to ensure the confidence of other parties.
- 7.10 Ofcom's preference is for a methodology based on engineering analysis, backed up by measurements in the field to verify the results as necessary. The details of the information required are set out in Annex 6.

Question 1) Do you have any comment on Ofcom's proposed basic methodology?

The nature of the service

- 7.11 3G networks can offer a broad range of services, from simple voice and text to advanced video calling and multimedia. Ofcom's proposed approach to measuring the coverage of networks reflects this variety.
- 7.12 The mix of services available at any location will depend on decisions taken by operators – for example about cell size and the number of simultaneous users supported. The proposed approach measures where a range of basic and advanced services are available under normal conditions, but recognises that this range may not be available there to all users at all times.

Considerations for engineering analysis by Ofcom

- 7.13 There are certain factors that need to be considered when deciding the analytical approach that Ofcom could take in assessing an operator's coverage. One such factor is the metric on which to base any prediction, e.g. some estimate of power received to enable the provision of some level of telecommunications service. Another such factor is the assumption on cell loading.
- 7.14 An assessment of coverage based on total power received would not give a true indication of whether a telecommunication service was available, as not all of the total power is used in providing a telecommunications service. This approach would tend to overestimate coverage.
- 7.15 The effects of cell breathing (the cell range effectively shrinks when a cell is heavily loaded) mean that the service level achieved at the edge of the coverage area changes as traffic changes. It is possible that the available coverage area could be different at different times of day due to changes in traffic levels/cell loading.
- 7.16 The primary common pilot channel (Primary CPICH) is used for cell selection, reselection and handover. The handset must be able to receive sufficient

Primary CPICH power in order to initiate a 3G call. Ofcom considers that reception of the Primary CPICH is a suitable proxy for the provision of a telecommunication service.

- 7.17 The percentage of total downlink power that operators devote to the Primary CPICH is a configurable variable under the control of the operator. The literature suggests that it is normally chosen to be within the range 5–15 % of the total downlink power. The choice of the proportion of Primary CPICH power allows a trade-off to be made in areas where coverage is more important than capacity and vice versa. If coverage is more important (say in rural areas) the proportion of the total power allocated to the Primary CPICH is set as high as possible, which leaves less power available to telecommunications services. If capacity is more important (say in urban/suburban areas) the cells will be smaller therefore not requiring as much power for the Primary CPICH thus leaving more power available to devote to capacity and higher data rate services.
- 7.18 Analysis conducted by Ofcom indicates that, with Primary CPICH power set within the range 5 – 15%, telecommunications services up to data rates of 384 kbits/s should be available at the edge of cell (at least for a lightly loaded cell).
- 7.19 Ofcom assumes that Primary CPICH power in the range 5 – 10% is likely to be indicative of urban/suburban deployment and therefore a value within this range is appropriate for our analysis of coverage of 80% of the population. Higher Primary CPICH powers of 10% and above being more likely to be used in less densely populated areas outside the 80% coverage area. Ofcom proposes to use a single value for the Primary CPICH power in the range 5 – 10% in its analysis. To verify this percentage, Ofcom will therefore need to know the total power transmitted from each 3G site of each operator.

Question 2) Do you agree that this is an appropriate basis for measurement?

Signal level

- 7.20 As indicated above, Ofcom proposes to use reception of the Primary CPICH as a proxy for the provision of a telecommunication service. In order to conduct this analysis the minimum signal strength that constitutes reliable reception of the Primary CPICH needs to be established. Ofcom proposes to use Recommendation ITU-R P.1546-2² as the propagation model in its calculation of the received Primary CPICH signal strength. This is a recommended propagation model from the International Telecommunications Union for point-to-area predictions for terrestrial services such as 3G services and it is available to all.
- 7.21 One of the basic rules which is used in network planning calculates the coverage against the statistical fade margin. If the fade margin has been selected such that the service availability at the cell edge is at least 90% then it can be shown that the service availability over the entire cell should be

² ITU-R.P 1546-2 is a recommended propagation model from the International Telecommunications Union (ITU)

greater than 97%. If there are neighbouring cells and handover is possible then the service availability over the entire coverage area should rise to better than 99%.

- 7.22 If the service availability at the cell edge is to be 90% then the fade margin must be 1.3 times the standard deviation of slow fading (assuming a normal distribution).
- 7.23 The mobile receiver sensitivity given in the 3G specifications (3GPP TS 25.101) is -117dBm.
- 7.24 ITU-R P.1546-2 quotes a standard deviation for slow fading of 5.5 dB for channels wider than 1 MHz.
- 7.25 Therefore the minimum signal level required to be received by the handset in order that it can “see” the Primary CPICH across the whole coverage area to better than 99% probability is $-117 + (5.5 \times 1.3) = -110$ dBm .
- 7.26 Ofcom therefore proposes that a Primary CPICH signal level of - 110 dBm is assumed for the purposes of assessing coverage.

Question 3) Do you have any comment on this assessment criterion?

- 7.27 If coverage was to be assessed for indoor use then an additional margin would need to be included in the calculation for the minimum receive signal level to take account of propagation losses through walls, etc. However, the rollout obligation does not specify that coverage must be indoors, and therefore Ofcom does not propose to include such a margin.

Population data

- 7.28 In order to assess coverage to the population it is necessary to have a database of the population against location for the UK (i.e. where people live).
- 7.29 Ofcom proposes that the 2001 census data is used. Ofcom already have this information available in a format suitable for use with our own planning tools. The way this data is apportioned geographically will need to be agreed.
- 7.30 As well as information about where people live, Ofcom has considered whether to factor in coverage provided for transient populations such as:
 - trunk road coverage, and
 - commuter influx to city centres during the day.
- 7.31 The MNOs are likely to have invested considerable amounts in providing coverage to these areas, seeking to serve their customers where they want to make calls, rather than where they actually live. Arguably, the utility of mobile communications is at its least in people’s homes and at its most when they are out and about. However, the rollout obligation is quite clear that it is ‘where people live’ which is to be evaluated. Ofcom therefore does not intend to take these factors into account when assessing compliance.

Question 4: Do you have any comment on Ofcom’s proposals in relation to population data?

Annex 1

Responding to this consultation

How to respond

- A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 20 October 2006**
- A1.2 Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 3), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.
- A1.3 Please can you send your response to martin.fenton@ofcom.org.uk.
- A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation to:
- Mr Martin Fenton
Floor 3:093
Riverside House
2A Southwark Bridge Road
London SE1 9HA
- Fax: 020 7783 4373
- A1.5 Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.
- A1.6 It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 4. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

Further information

- A1.7 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Martin Fenton on: 020 7783 4365

Confidentiality

- A1.8 Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt (when respondents confirm on their response cover sheet that this is acceptable).
- A1.9 All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so

that non-confidential parts may be published along with the respondent's identity.

- A1.10 Ofcom reserves its power to disclose any information it receives where this is required to facilitate the carrying out of its statutory functions.
- A1.11 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

Next steps

- A1.12 Following the end of the consultation period, Ofcom intends to publish a further statement around the end of November 2006.
- A1.13 Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

Ofcom's consultation processes

- A1.14 Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 2) which it seeks to follow, including on the length of consultations.
- A1.15 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.
- A1.16 If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, Director, Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom (Scotland)
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW
Tel: 0141 229 7401
Fax: 0141 229 7433
E-mail: vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

- A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.
- A3.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.
- A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing

☐

Name/contact details/job title

☐

Whole response

☐

Organisation

☐

Part of the response

☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

☐

Name

Signed (if hard copy)

Annex 4

Consultation questions

Summary of questions from section 7

Question 1) *Do you have any comment on Ofcom's proposed basic methodology?*

Question 2) *Do you agree that this is an appropriate basis for measurement?*

Question 3) *Do you have any comments on this assessment criterion?*

Question 4) *Do you have any comment on Ofcom's proposals in relation to population data?*

Annex 5

Impact assessment

Introduction

- A5.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Communications Act 2003 (the Act).
- A5.2 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally we have to carry out impact assessments where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions. For further information about our approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on our website:
http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

The citizen and consumer interest

- A5.3 Ofcom has carefully analysed the consumer interest and given it due consideration in the preparation of this statement, in conjunction with the impact on industry. Ofcom has identified three areas in particular where the issues raised in this consultation may have an impact on consumers and these have informed Ofcom's analysis in this document:
- services to consumers could potentially be disrupted as a result of the way in which the obligation is enforced. For example, some of the remedies open to Ofcom in the event of non-compliance could cause more disruption to consumers than others, therefore disruption to consumers would be a relevant consideration for Ofcom to take into account when deciding the appropriate action to take;
 - lack of regulatory certainty over the enforcement of the obligation could create disincentives to investment by MNOs which in turn could lead to reductions in service quality, or delays to the introduction of new services that would be to the detriment of consumers;
 - there may be network effects in the development of certain 3G services; network effects can arise when the more consumers there are, the more each individual benefits from using services. Some respondents to the previous SFR:IP consultation have argued that facilitating network effects could accelerate the development of advanced 3G services. However, it should be noted that network effects relate to subscribers connected to the network, and not directly to coverage. Moreover factors such as handset subsidies are likely to be important drivers in generating network effects for operators, as they have been in the development of 2G networks.
- A5.4 These consumer issues are common to the specific proposals on which Ofcom is consulting for measuring compliance with the rollout obligation and

which are set out below. Although they have informed Ofcom's overall thinking, they do not help differentiate between the options which Ofcom has considered, therefore Ofcom has focused on the impact on businesses in this assessment.

Ofcom's policy objective and the options open to Ofcom

- A5.5 This Impact Assessment addresses both the statement concerning the guidance on enforcement and the consultation issues regarding measuring compliance with the rollout obligation discussed in this document.
- A5.6 In its guidance on enforcement, Ofcom considered the options of whether or not to provide guidance and these are discussed below.
- A5.7 In order to measure compliance with the rollout obligation, Ofcom has considered a two stage process.
- A5.8 Firstly, Ofcom has considered what is the most appropriate measurement option for assessing compliance:
- Option 1- Engineering analysis by Ofcom;
 - Option 2 - Physical field strength measurement by Ofcom or an agent;
 - Option 3 - Engineering analysis backed up by sample field strength measurements;
 - Option 4 - Operator self declaration (either based on prediction, measurement or a combination).
- A5.9 Secondly, given that Ofcom's preferred option for measuring compliance is through a prediction based on engineering analysis supported by a sample of actual field strength measurements as necessary, Ofcom has considered a number of options over the choice of inputs to the prediction that bear upon the objective of measuring whether a basic telecommunications service can be provided.
- A5.10 A proxy for the ability of consumers to use a telecommunications service over a 3G network is the power that is available in a cell. One option would be to take the total power emitted by a transmitter, however since not all of the total power is used to provide a telecommunications service, this measure could lead to an overestimate of coverage. Instead, Ofcom has chosen reception of the Primary CPICH³ as the primary metric to represent whether telecommunications services can be used in a cell. The power devoted to the Primary CPICH can be expressed as the percentage of the total power emitted from a site. Ofcom will therefore judge coverage on the basis of the reception of the Primary CPICH by a handset. It will need to know both the total power emitted from each 3G site and an estimate of the percentage allocated to the Primary CPICH.

³ The Primary CPICH (primary common pilot channel) is used for cell selection, reselection and handover.

A5.11 Ofcom has therefore considered the following options for the input on the Primary CPICH:

- Option A - Ofcom chooses a single figure in the range 5-10% based on stakeholder responses to the question asked in this consultation;
- Option B - Ofcom asks the operators to provide the percentage Primary CPICH power(s) they use within their network.

Guidance on enforcement

A5.12 The key issues that affect the relative merits of providing guidance on the enforcement of the rollout obligations as opposed to not providing guidance are discussed below. If issuing guidance reduces regulatory uncertainty, firms will benefit from having more information in which to plan their investment decisions, and consumers will benefit from the effects of more efficient investment by the MNOs and more stability in the provision of services.

A5.13 The first issue is the degree of discretion enjoyed by Ofcom in making decisions about enforcing WT Act licence conditions. The narrower the degree of discretion the less the potential benefit in issuing guidance. However, Ofcom's discretion in this area is wide and this suggests that there will be more benefit in issuing guidance on enforcement than not.

A5.14 The second issue is the extent to which the rollout obligation itself addresses how compliance should be measured and the process to be followed in the event of the obligation not being met. The more these issues are addressed the less the benefits of providing guidance. In fact, the rollout obligation, though clear, is not forthcoming on these issues, which again suggests that issuing guidance will be of greater benefit.

A5.15 Thirdly, if the Information Memorandum for the 3G auction in 2000 reduced regulatory uncertainty, the benefits of guidance could be limited. H3G has proposed that Section 2.2.2 of the Information Memorandum serves this purpose. However, Section 2.2.2 described the process that would be followed to make a licence revocation or variation after a breach of the licence was apparent or established, and not how non-compliance would be established. So, again it appears that there is a benefit to giving guidance on enforcement.

A5.16 Finally, the UK regulatory position has changed regarding the need to take appropriate and proportionate measures aimed at compliance since the 3G licences were issued following the coming into force of the Communications Act 2003 which amended section 1E of the WT Act and brought UK law into line with Article 10 of the EU Authorisation Directive 2002/20/EC. This suggests that giving guidance on the proportionality of sanctions is appropriate in order to explain the factors that Ofcom would take into account.

A5.17 In conclusion, all the issues assessed above suggest that it is better to provide guidance on enforcement than not. In particular, providing guidance appears likely to reduce significantly regulatory uncertainty surrounding the rollout obligation.

Options for measuring compliance with the obligation

- A5.18 Ofcom believes that none of the options identified above in A5.8 is likely to have a detrimental impact on business. However, each of them carries different risks and the costs they impose are very different.
- A5.19 Option 1 - engineering analysis by Ofcom would use robust, industry standard models for assessing coverage. However this approach will need site specific data inputs, therefore it carries risks in terms of availability of data, and the possibility of introducing inaccuracies if assumptions have to be made where data is not available. This risk could be mitigated by the use of site data provided by the operators and can be mitigated further by allowing the MNOs an input into the specification of key assumptions such as Primary CPICH power.
- A5.20 Option 2, physical field strength measurements, could potentially produce the most accurate measurement of coverage, though there is a trade-off between the number of measurements and cost. Moreover field strength is not a constant, therefore even physical measurements will at best measure the average field strength that a handset will receive. Ofcom, considers that taking sufficient physical field strength measurements to produce a reasonably accurate prediction of coverage would be costly and would only improve to a limited extent the accuracy with which compliance with the obligation could be measured.
- A5.21 Option 3, engineering analysis backed up by sample field strength measurements carries the benefits of Option 1 and in addition would allow Ofcom to supplement its engineering analysis with sample measurements. This would further improve the robustness of the coverage predictions generated by the engineering analysis.
- A5.22 Option 4, operator self-declaration is also potentially an accurate means of measuring 3G coverage, assuming it is backed up by some means of independent verification or assessment. However, an MNO might have an incentive to publish the most optimistic interpretation of its network performance and coverage, and the likely limitations in the scope of independent verification may limit its power to act as a constraint on this incentive. This option therefore carries some risk in terms of the perceived objectivity of the estimate of coverage in relation to the obligation.

Conclusion

- A5.23 The above assessment suggests that the option of using engineering analysis, backed up by sample field strength measurements as necessary, delivers the greatest benefit net of costs. This, in addition to the other arguments expressed in the discussion of the merits of the different measurement options, supports Ofcom's preference for this option. It carries the least risk and lowest cost compared to the alternatives. For example, engineering analysis not backed up by sample field strength measurements runs the risk that Ofcom may not be able to verify the accuracy of certain assumptions, physical field strength measurement will be costly, and there is a risk that self-declaration overstates coverage.

Options for input into the engineering analysis

- A5.24 The advantage of Option A, where Ofcom chooses a single figure for the percentage of total downlink power allocated to the Primary CPICH is that a common value is applied to all the operators giving a common basis for the assessment of 3G coverage. The disadvantage of using a single figure is that it does not account for the variations in the percentage of power allocated to the primary CPICH that might be appropriate in rural as opposed to urban areas.
- A5.25 Option B, operator self-declaration of Primary CPICH power(s) they use within their network, has the advantage that it would enable the analysis to take into account variations in the percentage of power allocated to the primary CPICH in different areas as declared by each MNO. However, it may lose some degree of consistency in the basis of assessment of 3G coverage since the percentage of power allocated to the Primary CPICH could vary by operator.

Conclusion

- A5.26 Ofcom concludes that Option A is the better of the two options, primarily because in measuring compliance with the rollout obligation, the benefits of consistency in assessing 3G coverage appear to be more important than the potential inaccuracies from assuming a single value for power allocated to the Primary CPICH.

Annex 6

Details of technical parameters

Format of required data

A6.1 The table below gives the site data required and the format required for the engineering analysis.

Item	Format	Units
Operator		
Site Name/Id		
Sector Number		
Site grid system	British National or Irish National Grid	
Easting	123456 (to six figures)	
Northing	123456 (to six figures)	
Postcode	A12 3CD	
Antenna Azimuth	Degrees East of North	Degrees
Antenna Height	Metres above local ground measured to the radiation centre of the antenna	Metres
Antenna Type	The total azimuth 3dB beamwidth	Degrees
Transmit power out of the antenna	The EIRP of the sector	dBm
Down tilt	Total electrical and mechanical down tilt	Degrees

Data Assumptions

A6.2 The table below provides details on the assumptions Ofcom will make in relation to the required information.

Parameter	Assumptions made
Frequency	The centre frequency will be assumed to be 2100MHz.
Primary CPICH power	Ofcom assumes that Primary CPICH power in the range 5 – 10% is likely to be indicative of urban/suburban deployment and therefore a value within this range is appropriate for our analysis of coverage of 80% of the population. Higher Primary CPICH powers 10% and above being more likely to be used in less densely populated areas outside the 80% coverage area. Ofcom proposes to use a single value for the Primary CPICH power in the range 5 – 10% in its analysis. This is the percentage of total power transmitted from each site, Ofcom will therefore need to know the total power transmitted from 3G site of each operator.
Mobile receiver sensitivity	The mobile receiver sensitivity given in the 3G specifications (3GPP TS 25.101) is -117dBm. ITU-R P.1546-2 quotes a standard deviation for slow fading of 5.5 dB for channels wider than 1 MHz. Therefore the minimum signal level required to be received by

	<p>the handset in order to guarantee that it can “see” the Primary CPICH channel across the whole coverage area to better than 99% probability is $-117 + (5.5 \times 1.3) = -110$ dBm</p> <p>Ofcom therefore proposes that a signal level of -110 dBm for the Primary CPICH channel is assumed for the purposes of assessing coverage.</p>
Antenna Type	We intend to have a set of rules that govern the choice of 5 default antennas for the sector. The default antennas have a 3dB beamwidth of 33°, 65°, 90°, 110° and Omni.
Antenna down tilt	If this value is not given an estimate of 2dB is to be assumed.

Calculation assumptions

Propagation model

- A6.3 Propagation models use transmitter information with topographic data to calculate the field strength at a particular location.
- A6.4 ITU-R.P 1546-2 is a recommended propagation model from the International Telecommunications Union for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz

Assumptions in using ITU-R P.1546-2

- A6.5 The following assumptions will be made when using ITU-R P. 1546-2:
- The frequency will be assumed to be 2100MHz;
 - The receive height will be assumed to be 1.5m;
 - The propagation curves intended to be used are for 50% locations, 50% time;
 - Ofcom intends to use the correction for receiving antenna height; and
 - Ofcom intends to use the terrain clearance angle correction.

Topographic data

- A6.6 The propagation model requires terrain and clutter data to calculate the field strength of the radio signal. It is proposed to use 50m pixel resolution data

Composite coverage

- A6.7 The composite coverage represents the field strength from every transmitter. If the coverage from two or more transmitters overlap, the largest signal value is chosen from the overlapping coverage areas. The composite coverage will be calculated to a 100m pixel resolution.

Population data

- A6.8 It is proposed that the 2001 census data is used to analyse the coverage requirements.
- A6.9 The population within an area is grouped in the raw census data into Output areas. Each Output area represents the residential population of around 300

people. An Output area is given a centroid position that is representative of the location of the population it represents. The average census Output area is approximately 400m². The average size of the 80% most densely populated Output areas is approximately 100m².

- A6.10 For our analysis, the number of inhabitants is assumed to be equally distributed inside the Output Area and is mapped to 50m pixel to be analysed within our planning tool. The total population calculated with coverage is the total number of inhabitants summed from each 50m pixel that has a radio signal level above the minimum threshold value of -110dBm.
- A6.11 The total percentage population coverage will be calculated by (Calculated total population with coverage / total UK population as defined in the 2001 census data) x 100.