

Joint Technical Report – Mobile Operator responses to 11/60 and 11/75

ComReg Document 12/22

Joint Report for ComReg

By



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1 Introduction

This document follows on from ComReg document 10/71 ‘Retuning and Relocating GSM900 Spectrum Assignments in Ireland’, ComReg document 10/105 ‘Inclusion of the 1800MHz Band into the Proposed joint award of 800MHz and 900MHz spectrum’, ComReg document 11/60 ‘Release of the 800MHz, 900MHz and 1800MHz radio spectrum bands’ and ComReg document 11/75 ‘Multi-band Spectrum Release’ Draft Information Memorandum.

This document reviews and analyses the comments received from interested parties in response to ComReg documents 11/60 and 11/75.

This short technical report considers each operator’s response and the overall picture of operator’s positions that emerges as a result.

In particular, this document focuses on the details in the responses that are pertinent to joint technical reports 10/71c and 10/105b (“**the Reports**”), regarding the retuning and relocating of GSM900 and GSM1800 spectrum assignments in Ireland, prepared by Red-M and Vilicom (the “Reports”) and the extent to which those responses, would require revisiting any of the conclusions reached in the Reports.

In this document, reference is made to ‘relocation’ and ‘retuning’ of operator spectrum.

- Relocation means the process of moving the network to another part of the spectrum band without modifying the network for a reduced amount of spectrum
- Retuning means the process of modifying the network to cope with a reduced amount of spectrum.

ComReg Documents

1.1 ComReg Document 11/75 ‘Multi-band Spectrum Release’ Draft Information Memorandum

ComReg’s draft Information Memorandum details the processes and procedures ComReg envisages it will employ if it were to implement its proposals as detailed in document 11/60.

1.2 ComReg Document 11/60 ‘Release of the 800MHz, 900MHz and 1800MHz radio spectrum band’

ComReg document 11/60 sets out detailed proposals for assigning spectrum in the 800MHz, 900MHz and 1800 MHz spectrum bands, by means of a multiband spectrum auction. The proposed auction will determine the spectrum assignments across these spectrum bands for the period between 2013 and 2030. ComReg proposes to hold a Combinatorial Clock Auction for the spectrum allocations, in the

800MHz, 900MHz and 1800 MHz bands. Each spectrum band will be auctioned across two time periods.

Time Slice 1: 1st February 2013 – 12th July 2015

Time Slice 2: 13th July 2015 – 12th July 2030

ComReg has also proposed an ‘Early Liberalisation’ option for 900MHz and 1800MHz licence-holders whose current rights have yet to expire.

1.3 ComReg Document 10/71 ‘800MHz, 900MHz & 1800MHz spectrum release’

ComReg document 10/71 discussed the issue of the concurrent release of spectrum at 900MHz and 800MHz. The Red-M/Vilicom report 10/71c Retuning and Relocating GSM900 Spectrum Assignments in Ireland, published alongside ComReg document 10/71, examined three scenarios in the context of the liberalisation of 900MHz mobile spectrum in Ireland.

Report 10/71c estimated the impacts of the scenarios on mobile operators in terms of timescales and engineering costs. The scenarios were:

- an existing GSM licensee is assigned 2 x 10 MHz (Scenario 1);
- a GSM licensee is assigned 2 x 5 MHz (Scenario 2); and
- Meteor Mobile Communications Limited (“Meteor”) maintains its existing spectrum bandwidth (2 x 7.2MHz), but has to relocate 200 kHz lower to ensure that “Block E” is unencumbered for spectrum liberalisation. (Scenario 3).

1.4 ComReg Document 10/105 ‘Inclusion of the 1800MHz Band into the Proposed Joint Award of 800MHz and 900MHz Spectrum’

ComReg document 10/105 contained proposals for the liberalisation and release of spectrum at 1800MHz in a concurrent spectrum award process with the 900 MHz and 800 MHz bands. The Red-M/Vilicom report 10/105b Retuning and relocation at 1800MHz, published alongside ComReg document 10/105, examined three scenarios in the context of the potential liberalisation of 1800MHz mobile spectrum in Ireland. Relocation scenarios were examined, assuming that existing operators obtain 2 x15 MHz of spectrum or more and so would not have to contend with the additional engineering consequences of adapting their existing networks to a reduced spectrum allocation at 1800 MHz.

2 Views of the Respondents

2.1 Vodafone Ireland Limited (“Vodafone”)

2.1.1 Response to ComReg Document 11/60

In paragraph 19, Vodafone seems to suggest that the Red-M/Vilicom report proposes a transition period of 5 months for a Scenario 2 outcome. To recap, in Report 10/71c, the implications of three main scenarios were examined, in the context of the 900MHz radio spectrum band:

- Scenario 1: An existing GSM licensee is assigned 2 x 10MHz (Relocation),
- Scenario 2: An existing GSM licensee is assigned 2 x 5MHz (Retuning); and
- Scenario 3: Meteor maintains its existing spectrum bandwidth (2 x 7.2MHz), but has to relocate 200 kHz lower.

The timeframes associated with each of the scenarios are as follows:

- Scenario 1: The overall timeframe for the three existing operators to complete their band reassignment activity would be approximately five months. This consists of four months planning, 3 weeks for implementation and 1 week contingency.
- Scenario 2: In Scenario 2 of 10/71c, it is estimated that 90% of the additional sites required could be completed by the end of year 2, allowing the GSM900 spectrum to be relinquished at the end of the 2 year period, with minor additional disruption to network subscribers.
- Scenario 3: The timeframe for Scenario 3, when considered in isolation, would be approximately 4 months. This consists of three months planning and one week for implementation.

In paragraph 20, Vodafone states that it

‘do[es] not believe that the Red-M\Wilicom report can be legitimately used as supporting ComReg’s proposals for advanced commencement of new licences in the case of scenario 2.’

However, in ComReg document 11/60, paragraph 7.26, ComReg states that it believes that Advanced Commencement Scenario¹ 1 could not occur where an existing GSM 900MHz licensee won only a paired 5MHz block being block A or B².

¹ Note: ComReg has used the generic term “scenario” in relation to Advanced Commencement. To distinguish this term from transition scenarios considered in the Reports, the term “Advanced Commencement Scenario” is used in this document when commenting upon scenarios in relation to Advanced Commencement

The Red-M/Vilicom report 10/71c ‘Retuning and Relocating GSM900 Spectrum Assignments in Ireland’ suggested the use of mitigation techniques to adjust to a reduction in 900MHz spectrum. Mitigation techniques listed in 10/71c included:

- Increasing the use of AMR-HR (Adaptive Multi-Rate – Half Rate) coding at 900 MHz and 1800 MHz,
- Offloading capacity to existing 1800 MHz and 2100 MHz cells where possible; and
- Adding new 1800 MHz & 2100 MHz cells on existing 900 MHz sites.

Scenario 2 of 10/71c did not assume the use of any of the mitigation techniques outlined above, as there was no operator information available on which to base realistic assumptions. To the extent that these techniques would help the operator to adjust to a reduced spectrum allocation, the Scenario 2 outcome as presented in report 10/71c, can be considered a ‘worst case analysis’ since it analysed only the option of building new GSM900 sites.

In paragraph 25, Vodafone reminds ComReg that it currently has national roaming agreements with Meteor, e-mobile (Eircom) and H3GI, and that it may be forced to terminate these arrangements in order to offload traffic. These national roaming agreements are temporary and subject to review by both parties. Should one of the operators decide not to renew their contract, then Vodafone would have significantly extra capacity to deal with the transitional activities required following a Scenario 2 outcome of the auction.

If Vodafone found it necessary to terminate one or more of these contracts, to ensure minimum impact on its customers, then the terminated partner might avail of several solutions to ensure a minimum loss of coverage, including entering another national roaming agreement with an alternative operator. It is worth noting the possibility that operators already engaged in infrastructure sharing agreements may also decide to enter into national roaming agreements.

Predictions about the future of the market for national roaming agreements in Ireland are highly speculative. For this reason, Scenario 2 of 10/71c did not assume any capacity was released from, or added to, incumbent operators GSM900 networks due to the future evolution of such roaming agreements.

Finally, in paragraph 26, Vodafone agrees that the relocation activities associated with Scenario 1 are

‘less problematic and more readily amenable to a commonly agreed approach’.

² 11/60 does not specifically cover the case if an incumbent won only a paired 5MHz block other than block A or block B. However in this case the logic of paragraph 7.26 still applies in that it is unlikely that an existing GSM licensee winning only one 2 x 5 MHz block would be in a position to fully avail of liberalised rights in the new licence as it would be likely to require the full 5 MHz spectrum assignment to service existing GSM customers.

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2.1.1 Response to ComReg Document 11/75

Vodafone does not make any comments pertaining to the Reports.

2.2 Telefónica Ireland Limited (“Telefonica”)

2.2.1 Response to ComReg Document 11/60

Telefonica expresses concern that although ComReg has proposed a start date for new licences of February 2013, ComReg has yet to propose a date for the multiband auction. Telefonica believes that there is insufficient time for all the existing GSM 900MHz operators to retune and relocate their networks. This is based on its stated assumption that the earliest a multiband auction can take place is Q3 of 2012. In another part of its response to 11/60, Telefonica appears to indicate that it is its view that an auction might happen earlier, as when it discusses the two temporal lot structure in paragraph 6.3 of their response, it states

‘with the auction now not taking place until at least mid-2012...’

As outlined earlier, the Red-M/Vilicom report 10/71c ‘Retuning and Relocating GSM900 Spectrum Assignments in Ireland’, estimated the impacts of three scenarios on mobile operators in terms of timescales and engineering costs. In scenario 1, 10/71c concludes, that where an existing GSM licensee is assigned 2 x 10 MHz, the overall timeframe required for the existing operator to complete its band reassignment activity would be approximately five months.

Accordingly there is still sufficient time available to hold a multiband auction and allow a timeframe of 5 months for band reassignment activities before the proposed start date of February 2013 under the ‘Scenario 1’ assumption analysed in 10/71c.

Telefonica also expresses concern that there will be insufficient time to mitigate the risk of widespread consumer disruption caused by failure to win any 900MHz radio spectrum at the auction. It believes that:

‘Telefonica and Vodafone are likely to have less than six months to cease using the 900 MHz bands in the event that they do not win 900 MHz spectrum’.

This is based on an assumption that the earliest a multiband auction can take place is Q3 of 2012 and under the hypothesis that Telefonica fails to win any 900MHz spectrum at auction.

Paragraph 11.3 of Telefonica’s submission to ComReg document 11/60 states, in relation to Advanced Commencement:

“In the below scenario it is not technically feasible to make the currently unoccupied spectrum in question available in the 900 MHz band as proposed, as the full band will be required to physically facilitate the sequential relocation and re-tuning of 900 MHz lots of all existing occupants prior to

licence commencement required by ComReg’s Full Assignment Round approach.”

The question here in relation to advanced commencement (that is, obtaining a commencement date for a Liberalised Use Licence before 1 February 2013) appears to be the number of interdependent steps and the time to relocate before all operators can have access to liberalised spectrum. The steps suggested by Telefonica, are shown for reference in Figure 1.

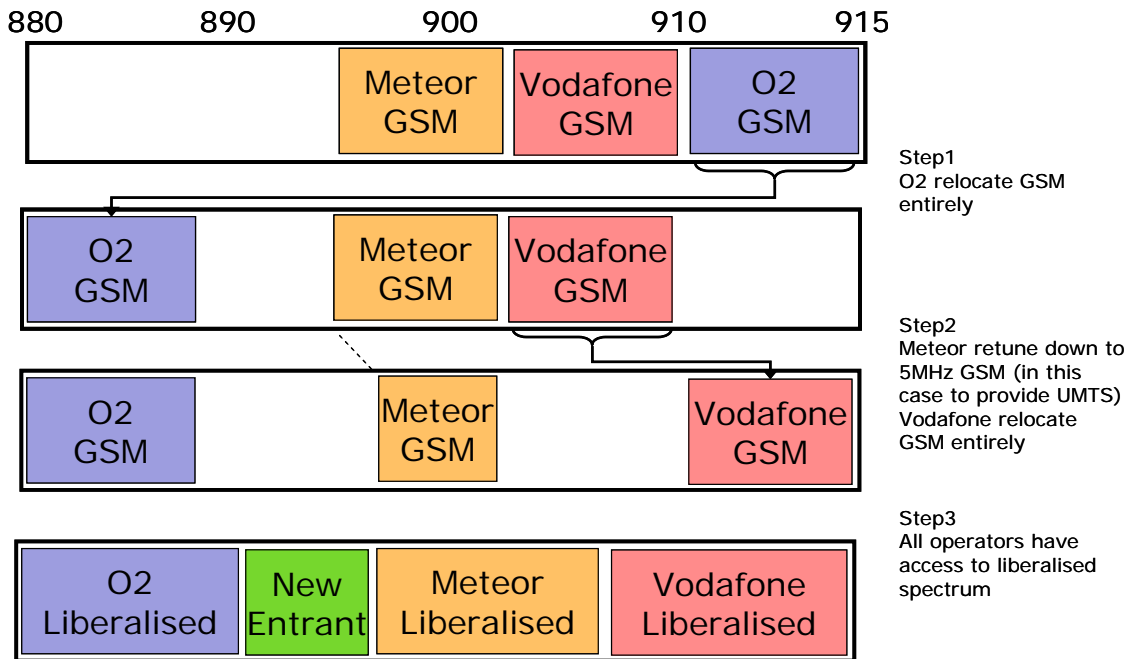


Figure 1: Hypothetical Relocation Steps suggested by Telefonica

In this sequence of hypothetical steps, there are two interdependent steps. As the activity that Telefonica ascribe to Meteor in ‘step 2’ requires reconfiguration of the GSM900 network from 7.2MHz to 5MHz, an alternative and potentially shorter reconfiguration would be where Meteor relocates/retunes into its new spectrum in a step that follows on from Vodafone relocating/retuning to its new spectrum. This alternative would then require three dependent operator steps, but all three steps would be relocations. Document 10/71c concluded that the worst practical case of this type would be three interdependent implementation phases. This worst case is the scenario identified in Figure 1, because the outcome of the assignment round that has been assumed by Telefonica is one in which Vodafone obtains spectrum currently occupied by Telefonica, who therefore needs to relocate first.

An alternative hypothetical outcome from the assignment stage, which respects the same outcome from the primary and secondary bidding rounds, is shown in Figure 2. In this alternative outcome O2 and Meteor have been assigned adjacent spectrum in the assignment stage and a single step or two interdependent relocation/retunes is sufficient to ensure this spectrum is occupied by the winning operators.

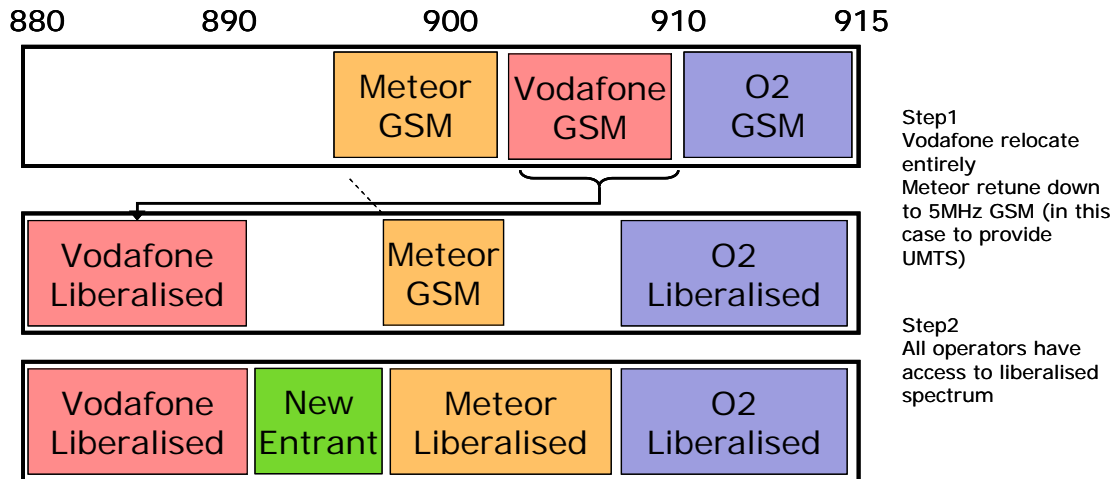


Figure 2: Alternative Hypothetical Assignment Round Outcome

The outcome of neither the primary and secondary rounds, nor the assignment stage can be known beforehand. As illustrated by the example given by Telefonica, the outcome of the assignment stage can have an influence on the number of independent operator relocations/retunes.

In both cases, shown above in Figure 1 and Figure 2, however, blocks A and B are available for liberalised use immediately under the hypothesis that the right to use them is won by an existing operator so there is no need for these blocks to be occupied in a transitory manner by another operator to facilitate the sequential relocation and retuning of the remaining 900MHz lots. These examples therefore follow the Advanced Commencement Scenario 1 proposal in ComReg document 11/60 paragraphs 7.25 to 7.30.

2.2.2 Response to ComReg Document 11/75

Telefonica does not make any comments pertaining directly to the Reports. However, in paragraph 1.5, Telefonica states:

‘we are concerned that already all signs are that the assignment process will not have concluded in time for us to make whatever modifications are necessary by that time.’

and in paragraph 2.3, Telefonica states:

‘The availability of 900MHz is a growing concern also, as network reconfiguration will be required post-auction, and the time available already seems inadequate.’

The Reports considered the specific actions and timescales that would be required in relation to the given auction outcomes. Telefonica’s comment in paragraph 1.5 is a general comment and as such is not related to a specific auction outcome for which an analysis of the required timescales could be estimated.

2.3 Meteor Mobile Communications Limited (“Meteor”)

2.3.1 Response to ComReg Document 11/60

In its response to 11/60, Meteor does not make any comments pertaining to the Reports.

However Meteor suggests that generic technical planning activities should commence prior to the proposed auction, thus ensuring that the maximum time possible is made available for transitional activities.

Red-M/Vilicom assume that these ‘generic technical planning activities’ will then feed into the ‘Project Plan’, that will take place after the auction and will include the winners of the liberalised 900MHz and 1800MHz licences, as well as the existing GSM licensees. Project planning and ‘generic technical planning activities’, as a general issue, were raised by more than one respondent and are therefore considered separately in section 3 below.

In section 3.3.6 of its response, Meteor states in relation to paragraphs 7.25 to 7.30 of ComReg document 11/60:

“At least one of the blocks will be required to facilitate any relocation activities within the band. Depending on when the award process is completed, in turn informing the period for relocation activities to be completed, and the extent of the relocation activities, there may be a requirement for both blocks A and B to facilitate relocation activities. As such we do not believe it can unequivocally be stated that Block A could be made available immediately following completion of the award process. Such matters can only be determined when all the facts are known following completion of the award process.”

The discussion in paragraph 2.2.1 relating to Telefonica’s comments on the ‘advanced commencement’ proposal and Figure 1 and Figure 2, provide a counter-example to the statement that ‘at least one of the blocks will be required to facilitate any relocation activities’. In Figure 1 and Figure 2, neither block A nor block B is required to facilitate any relocation activities, and the outcomes considered fall under Advanced Commencement Scenario 1 of ComReg 11/60 paragraph 7.25. Additionally, it should be noted that only under the two specific Advanced Commencement Scenarios where blocks are not required to facilitate relocation activities does ComReg’s proposal in Document 11/60 paragraphs 7.25 to 7.30 identify that blocks will be made available under advanced commencement. It follows that under all other potential scenarios, the blocks are potentially available to facilitate relocation activities, should they be required, when the results of the assignment stage are known.

2.3.2 Response to ComReg Document 11/75

Meteor does not make any comments pertaining to the Reports.

2.4 Hutchinson 3G Ireland Limited (“H3GI”)

2.4.1 Response to ComReg Document 11/60

The H3GI response (Elisa Case Study, page 53) to 11/60 refers to comments made on page 18 of ComReg Document 11/57, Joint Technical Report, Mobile Operator Responses to 10/71, 10/105 and 11/11, which considered the responses to the Reports.

The Elisa Case discusses activities and timescales for an incumbent 900MHz operator in Finland to ‘liberalise’ its network. This is relevant to the Reports as their objective is to consider similar issues for Ireland.

Quoting the original case study:

“Elisa has a licence for 2 x 11.4MHz of the 900MHz band (the other two operators, DNA and Sonera, also each have equal assignments of 2 x 11.4MHz). The task facing Elisa was how to clear sufficient 900MHz spectrum from within its assignment to initially support one UMTS carrier.”

In document 11/57, it is pointed out that the incumbent operators, Telefonica and Vodafone have 2 x 7.2MHz of spectrum, and this different amount of spectrum is significant, in relation to how the results of the Elisa case study could be applied in Ireland. For example; if an incumbent operator in Ireland acquired 2 x 12.2MHz of spectrum (2 x 7.2MHz of spectrum plus an additional 2 x 5MHz), then it could introduce UMTS at 900MHz without any impact on the capacity of its existing GSM900 network at all. Since this is not a possible outcome of the auction, in respect of Time Slice 1, the two scenarios examined in the Reports were:

- an existing GSM licensee is assigned 2 x 10 MHz (Scenario 1)
- an existing GSM licensee is assigned 2 x 5 MHz (Scenario 2)

The H3GI response to 11/60 partially addresses the difference in spectrum between incumbent operators in Ireland and Elisa in Finland, by postulating that:

“It is the view of Value Partners and RRA that such a spectrum cap will very likely result in [Confidential Text Removed] acquiring 2 x 10MHz of 900MHz spectrum with the remaining 2 x 5MHz being acquired by [Confidential Text Removed] (or possibly a new entrant although new entry is extremely unlikely). Therefore, in this likely scenario, the distribution of spectrum is actually very similar to Finland with [Confidential Text Removed] holding 2 x 10MHz of liberalised 900MHz spectrum with additional spectrum in the 1800MHz band.”

The H3GI response to 11/60, then points out that the relative penetration of AMR-HR handsets is a significant factor in determining how the Elisa case study could be

applied to Ireland. In this context the comment of Vodafone on the use of AMR in its confidential response to 10/71 is also significant:

“[Confidential Text Removed]”

The H3GI response to 11/60 then considers the case of Telefonica (UK). It states that

“...the task was completed within a few months of Ofcom’s decision to liberalise the 900MHz spectrum. It is accepted that O2 (UK) has 2 x 17.4MHz of 900MHz spectrum.”

The difference in the amount of spectrum is indeed highly significant, when seeking to compare the case of an incumbent GSM900 operator in the UK to that of one in Ireland.

In summary, we are of the view that when applying case studies from one country to the circumstances of another, account should be taken of significant differences in the circumstances between the two countries.

2.4.2 Response to ComReg Document 11/75

H3GI does not make any comments pertaining directly to the Reports. However, on page 2 of the response H3GI notes that ComReg:

“proposes that the existing GSM licensees, Vodafone, O2 and Meteor (the “Existing GSM Licensees”) propose how they should complete the transitional activities required to permit liberalised use of 900 and 1800 MHz spectrum and does not specify a deadline for completion of these transitional activities - notwithstanding the emphasis it placed on the fixed duration of the GSM interim licences and the extensive research conducted by Vilicom and Red-M in respect of transitional activities.”

H3GI further states that:

“ComReg needs to: (i) take the lead in relation to the design and management of the award process and specify a robust framework for transitional activities, including milestones and timetable for completion with penalties that deter non-compliance;”

and that

“ComReg further needs to create an incentive for Existing GSM Licensees to complete transitional activities as soon as possible.”

On page 11 of its response

“As indicated above, H3GI believes that it is entirely inappropriate that ComReg should seek to delegate design and management of the requisite transitional activities to the Existing GSM Licensees and that such behaviour does not constitute a proper discharge of ComReg’s functions.”

“H3GI is disappointed and concerned that the Draft IM makes no reference to a timetable in relation to the establishment and publication of ComReg’s proposed Project Plan for transitional activities, but instead suggests that this will be a matter for the Existing GSM Licensees to address by way of collective proposals two weeks after the announcement of the results of the award process.”

The Reports deal with transitional issues in the respective bands, 900MHz and 1800MHz. The documents consider a small number of potential auction outcomes and evaluate required transitional activity, under a defined, but limited, set of potential operator responses.

The conclusion of the Reports is that the required transitional activity is dependent on the auction outcome. Outcomes in which, incumbent operators must adjust to a reduced spectrum allocation in the respective bands, have the potential to require longer transitional activity than those, in which only relocation activity is required.

Whatever mechanism is used to determine the appropriate regulatory oversight of transitional activity, the timescales suggested in the Reports can only be relied upon in the context for which they were determined.

H3GI submitted a further document after its submission to 11/75, dated 23 January 2012. This document refers to ComReg document 11/102 ‘Spectrum Liberalisation - Publication of non-confidential responses to ComReg Document 11/60, correspondence from interested parties and ComReg’s written responses to same’. H3GI does not make any comments pertaining to the Reports.

3 Transition Rules and Project Planning

3.1 Introduction

Following the publication of the Reports, and in recognition of the interdependent nature of relocation and retuning in the 900MHz and 1800MHz frequency bands, ComReg’s proposals have given consideration to the manner in which transition rules for the frequency bands could be efficiently enforced. Section 3.8 of ComReg document 11/75 discusses the transition rules for the 900 MHz and 1800 MHz frequency bands.

The ComReg proposal generated some comments from the operators. H3GI, in its response to Document 11/75, was of the view that:

“ComReg needs to: (i) take the lead in relation to the design and management of the award process and specify a robust framework for transitional activities, including milestones and timetable for completion with penalties that deter non-compliance;”

Additionally, Meteor and H3GI provided comments on the timeframe for formulating the plan.

- Meteor, in its response to Document 11/60, was of the view that that it may be prudent for ComReg to undertake preparatory technical discussions and

commence more generic technical planning activities, in advance of the award process, as such transitional considerations may require a degree of negotiation and mediation and will therefore consume some of the transitional period.

- In its response to Document 11/75, Meteor noted ComReg’s proposal of two weeks and it believed that this did not appear to be sufficient to finalise such discussions. It suggested that ComReg should retain the right to extend this time period.
- H3GI, in its response to Document 11/75, expressed concern that the Draft Information Memorandum did not set-out a timeframe when the project plan for relocation activities would be established and published. While it noted and welcomed ComReg’s proposal to consult on such activities with winning bidders, it stated that it
“(H3GI) ... would be concerned that the consultation is carried out in as expeditious a manner as possible so as to avoid unnecessary / further delay to the award process.”

Paragraph 3.2 below provides some high level discussion on what the generic technical planning activities could be and potentially, which ones could be usefully commenced before the results of the assignment round.

At a strategic level one could assume that an operator, wishing to minimise disruption to its customers, would have a high level ‘strategic plan’ which would identify what actions it would take in relation to a number of auction outcomes. The Reports were particularly generic in their analysis of Scenario 2, where incumbent operators lose spectrum in the 900MHz and 1800MHz frequency bands. This was because there are a large number of potential strategies that an operator could use, and only the ‘lowest common denominator’, or worst case scenario, approach of building more sites was analysed in detail. Section 3.2 below, therefore considers the generic activities that an operator could undertake, although in reality we assume that the activities of each operator would be targeted and focussed on the strategy that an operator has set, in relation to each potential auction outcome.

3.2 Generic Planning Activities

There are several possible outcomes to the spectrum auction and to enter into preparatory bilateral or multilateral discussions before the results are known would appear premature. However, there is merit in each of the existing GSM licensees starting to prepare its own ‘Project Plan’, which would consider all of the different possible scenarios that could result from the award process. The collation and discussion of these project plans could be the initial activity in formulating the Relocation Project Plan, commencing in the two week period immediately following the announcement of the Award Process. This would help to ensure that a final Relocation Project Plan for the 900 MHz and 1800 MHz frequency bands could be drafted and agreed by all Existing GSM Operators, within the two week time frame.

In ComReg document 11/75, paragraph 3.131, ComReg sets out several points that it would like to see addressed in the Project Plan. Existing GSM licensees should have a clear perspective on these points.

Additionally, ComReg notes that if existing GSM Operators are unable or unwilling to draft a project plan within the allotted time, then ComReg has stated that it will prepare and implement a relocation project plan (11/75 paragraph 3.133).

Scenario 1

ComReg document 10/71c, with regard to scenario 1, states that the overall timescale, for the three existing operators to complete a band reassignment activity, would be approximately five months. This consists of four months of planning, three weeks for implementation and one week for contingencies.

The figure below, presented in ComReg document 10/71c, paragraph 3.4, represents a high level project plan showing the tasks and associated timescales. As stated in ComReg document 10/71c, the start date of the project shown in the figure below is relatively arbitrary, as operators can commence the planning phase in advance of the auction. Paragraph 3.3.1 in ComReg document 10/71c outlines the activities that need to occur in the planning phase in detail.

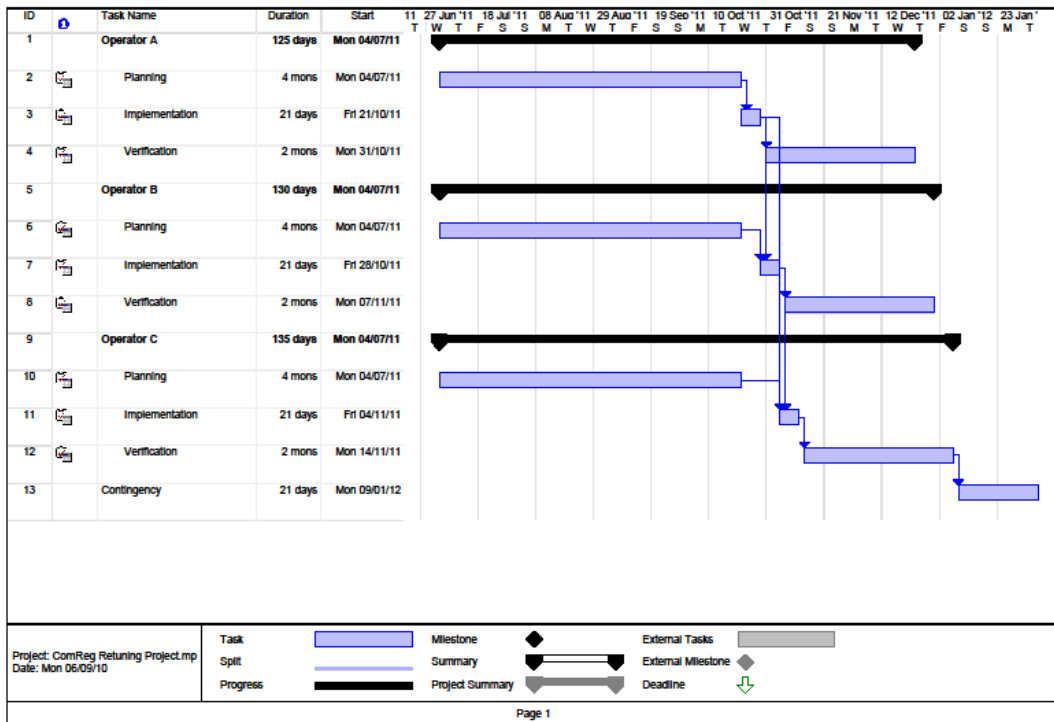


Figure 3: High Level Project for Relocation and Retune activities 900MHz Spectrum Band (to scale)

We are of the view that planning activities that an existing GSM Licensee could initiate in advance of the auction include;

- Identifying parts of the data-fill that relate to the frequency of operation, which will need to be modified,
- Identifying parts of the GSM900, GSM1800 and UMTS data-fill, which will need to be modified to ensure handover between the networks,

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- Identifying all radio equipment that cannot be modified, such as band selective repeaters and source replacement equipment, if required,
- Ensuring correct landlord contact details for sites are available in case sites visits are required; and
- Producing a staff and resource plan for Implementation and Verification phases.

ComReg document 10/105b, with regard to scenario 1, states that the overall timescale, for the three existing operators to complete a band reassignment activity, will be determined by the amount of inter-operator dependency that results from the band allocations decided by the auction process. The worst case scenario of four relocations, three of which are interdependent, will require five months of planning and implementation. However, the planning phase could be reduced to one month if an identical operation had recently been completed at 900MHz.

Figure 4, presented in ComReg document 10/105b, paragraph 3.4, represents a high level project plan showing the tasks and associated timescales. As stated in ComReg document 10/105b, the start date of the project shown in the figure below is relatively arbitrary, as operators can commence the planning phase in advance of the auction. The planning activities that an existing GSM Licensee could initiate in advance of the auction for the 1800 MHz spectrum band are the same as those previously listed for the 900 MHz spectrum band.

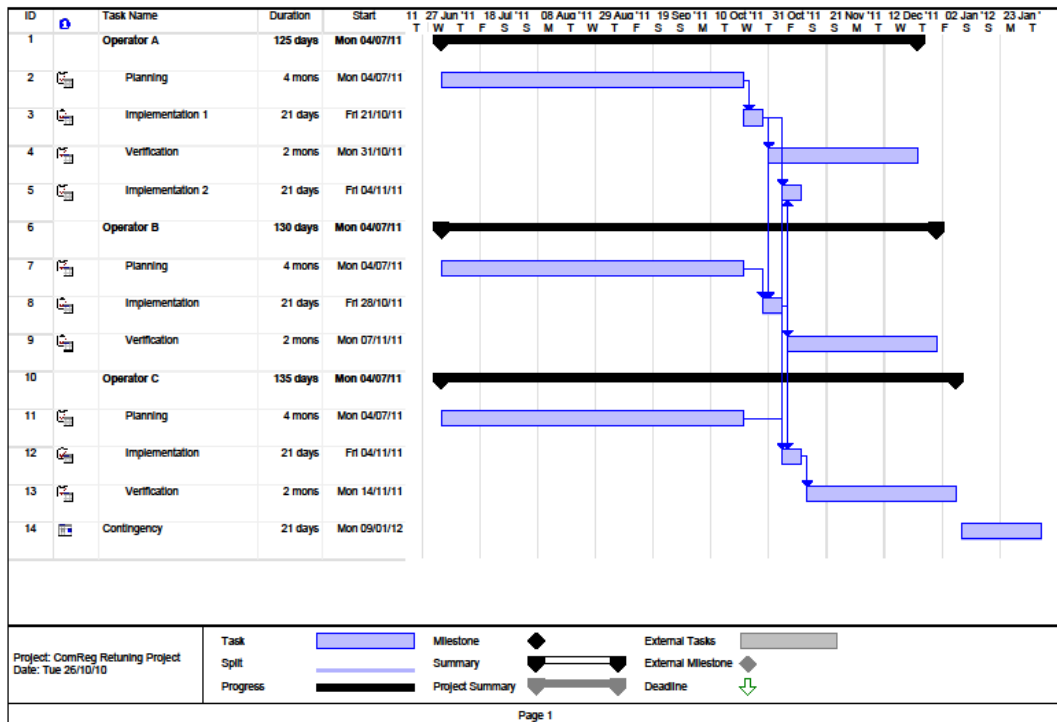


Figure 4: High Level Project for Relocation and Retune activities for 1800MHz Spectrum Band (to scale)

Scenario 2

An existing GSM operator should also prepare for a retune to 5MHz, i.e. scenario 2, since whatever the detailed outcome of the assignment stage, if it needs to reduce the amount of spectrum it occupies for GSM³, some common activity will be required.

It is suggested that an existing GSM licensee, in addition to the planning activities listed above carry out the following technical activities:

- Identifying and documenting the strategic network approach it would use to prepare for the scenario of reduced spectrum for GSM purpose, noting that such a scenario may be necessary for the deployment of UMTS 900. It is assumed the specific activities identified below are consistent with this strategic approach.
- Preparing a new GSM network frequency plan based on 5MHz
- Moving traffic to alternative frequencies
- Enabling AMR
- Trialling a cluster area demonstrating the above measures.
- Identifying 900MHz sites to which new 1800 MHz and 2100MHz base stations could be added to

In addition to the technical activities listed above, there may be other planning activities which could occur.

- Identify any partners it may require during the transition (subcontractors, consultants etc.) and agree terms on which such support might be made available.
- Identify any arrangements (broadly described by ComReg as ‘non-technical measures’) that may be made. These may include discussions with other existing GSM licensees regarding spectrum sharing, leasing or other arrangements that might ease the transition period, provided such discussions comply with competition law and the auction rules (e.g. discussion should take place before such discussions are forbidden by any non-collaboration requirements of the auction process).

Carrying out the above planning activities in advance of the award process would mean that these activities would not have to be performed after the award process. The resulting reduction in time for the relocation activity post-award would therefore be the amount of time saved on the critical path of the planning phase by completing activities in advance of the award.

It is therefore likely that some time could be saved in the overall four month planning activity estimated in the Reports. Arguably the greatest benefit for generic advance planning would be advantage in certainty that would be achieved by the operators being able to commit to a detailed and coherent plan within two weeks of the auction outcome being known.

³ Note, these processes would also have to be carried out where an operator obtains 10MHz of spectrum, but wished to use 5MHz for UMTS 900, while retaining 5MHz for GSM.

3.3 Relocations in both the 900MHz and 1800MHz Spectrum Bands

Existing GSM Licensees may have to carry out relocation activities in both the 900MHz and 1800MHz spectrum bands. ComReg document 10/105b, estimates that an additional month is required for the planning phase, for a network relocation in the 1800MHz spectrum band subsequent to a similar relocation in the 900MHz spectrum band. Therefore a simultaneous relocation in the 900MHz and 1800MHz spectrum bands would require a minimum of an additional month compared to a single band relocation.

The activities identified in the planning phase for a network relocation in the 900MHz spectrum band are essentially the same as those required for a network relocation in the 1800MHz spectrum band.

However, it is worth noting that if the equipment for each spectrum band is supplied by different vendors then additional testing would be required.

Operators may decide to carry out the relocation activities for the 900MHz and 1800MHz spectrum bands separately. In this case, a full planning period of four months can be assumed for the second band relocation. This will double the time required to perform a network relocation in the two bands as compared to a single band.

4 Conclusion

Red-M and Vilicom have reviewed all responses received to ComReg document 11/60 'Release of the 800MHz, 900MHz and 1800MHz radio spectrum bands' and ComReg document 11/75 'Multi-band Spectrum Release, Draft Information Memorandum'.

Attention has been focused on the details in the responses that influence the conclusions reached in the Reports regarding the retuning and relocating of GSM900 and GSM1800 spectrum assignments in Ireland.

The comments received do not lead us to believe that any update or re-write of ComReg the Reports is required.