



**O2 Response to Radio Spectrum Policy Group  
Public Consultation on secondary trading of rights to use radio spectrum  
February 2004**

O2 welcomes the Radio Spectrum Policy Group (RSPG) Public Consultation on secondary trading of rights to use radio spectrum, as part of the RSPG work to investigate the level of interest in spectrum trading as a tool for more flexible spectrum management. O2 supports the Commission's objective to ensure that the introduction of secondary trading in some or all Member States has a positive effect in the European Community, in particular for the EU internal market and for European competitiveness. We believe that spectrum trading will further the development of an innovative market in the interest of consumers.

The views expressed in this response should be taken as a cohesive set of points due to the range and complexity of the issues involved, rather than as a series of individual comments and answers to the questions posed in the Consultation. Since the introduction of spectrum trading is a complex and fundamentally far reaching shift for spectrum using industries, we believe that it will be important to many radio industry sectors to develop a clear, consistent and reliable set of trading regulations across Europe. O2 encourages the Commission and the RSPG to continue with their open and considered approach.

We believe that a straightforward, workable solution is needed and encourage the RSPG to recommend the avoidance of overly complex arrangements. A number of commercial arrangements between licensees are already in place across Europe and a fully implemented trading environment will enhance the competitive environment already prevalent in radio based industries. We believe that the introduction of spectrum trading should not impose additional burdens on existing licensees, nor should it impact on existing commercial relationships. A light touch regulatory regime will enhance the spectrum management benefits that can be achieved through spectrum trading.

O2 believes that the potential benefits of spectrum trading must be viewed in a long term context, since long term investments have been made by many radio industry sectors. A stable regulatory environment, a clear picture of current licences and available spectrum, and clarity of future opportunities through planned spectrum releases are all required. O2 views spectrum trading as an important element of the transition to an improved spectrum allocation process, and we believe that care should be taken by regulators to develop practical trading regulations.

Our answers to the specific questions raised in the Consultation appear as an Annex to this response, but our comments covering the most important issues relating to spectrum trading are as follows:

- O2 supports spectrum trading that allows holders of spectrum licences to buy and sell all or part of their rights to use spectrum, whether it involves the outright transfer of rights and obligations, leasing or hire. We believe that this would encourage investment by both existing licensees and by those seeking new investment opportunities.
- We do not believe that licence exempt spectrum is tradable, since there are no property rights associated with its use. O2 does consider, however, that there is a need to maintain a balance in the supply of spectrum between licensed bands, which are quality managed, and the best efforts, free-for-all licence exempt bands. An imbalance in supply could, if too much spectrum were to be made licence exempt, undermine the business case for licensed radio network deployments resulting in lower or ceased investments and a consequential lower quality of service for users. Conversely, if too much spectrum were to be reserved for licensed use, a perceived scarcity could artificially inflate the value of spectrum.
- O2 supports liberalisation that allows some change of use, but only after a basic trading regime is fully implemented. Through this de-coupling of trading and liberalisation we believe that basic trading for all licences could be implemented at an earlier date than full trading, leaving the more complex issues of liberalisation to be addressed separately.



- In order to implement the trading regime, existing licences will need to be re-negotiated to make them suitable for trading. This will require the resolution of a number of issues that could enhance regulatory certainty for a range of licensed users. For mobile network operators (MNOs), certainty over the future regime is critical in making investment decisions that may have repercussions for ten to twenty years. The implementation of spectrum trading provides an ideal opportunity for regulators to simplify licences and introduce consistency in terms and conditions (obligations). This will ensure that market distortions are not created as a result of legacy regulatory interventions in the previous “command economy” of spectrum. O2 firmly believes that the retention of certain existing obligations would make the implementation of trading unwieldy and the future introduction of liberalisation unworkable. For example, it would be inappropriate for a licence condition pertaining to a fixed service to remain applicable for an operator with a mobile application.
- We support the introduction of a competition regime that is in line with those prevailing in downstream markets, but we are concerned that an uncoordinated approach could result in inequalities amongst Member States, with some regulators relying on guidelines for both competition terms and in the management of interference.
- Given the historical cost of some licences O2 considers that any new licensing regime should not detract from the level of protection hitherto afforded to MNOs and other licensees. We believe that protection from interference is of critical importance to users of the spectrum. For spectrum licences to be traded (or indeed initially assigned) they must be free from undue interference. The levels of interference expected are a critical design parameter for radio systems and O2 expresses great concern that regulators must exercise extreme caution when establishing levels of interference, which are critical even for basic trading. We suggest that RSPG should recommend that sufficient time is allowed for existing licence holders to consider the potential effects of any proposed levels of interference and to discuss and resolve any concerns they might have with national and regional regulators prior to implementation..
- O2 supports in principle an approach to defining transmission rights in terms of transmitted power or eirp and a ‘spectrum mask’, but note that one common measure such as this may be limited in its application. We believe that great care is needed with the definition of transmission rights to ensure that the protection afforded to existing users, through the various definitions prescribed by the Radio Regulations and normative standards, is not diminished.
- We believe that technologies such as UWB are not suitable candidates for use as an underlay in tradable (i.e. licensed) spectrum, since licensed network operators in general need to ensure the provision of a high quality of service to their customers, and cellular network operators in particular need to dimension their networks accurately to maintain sufficient nationwide capacity to ensure this quality of service. Allowing UWB transmissions in a deregulated way (the only way in which UWB equipment could be used) has the potential for raising the noise floor above the level at which cellular networks have been dimensioned. Also, since licence exempt usage has an uncontrolled and unpredictable deployment, it is difficult to plan the interference impact on licensed solutions apart from the application of worst case considerations. In this case, O2 considers that higher frequency spectrum might be more suitable for accommodating emerging technologies such as UWB in dedicated licence exempt bands, since this option compares favourably with the potential impact of these technologies laying under heavily and efficiently utilised, licensed mobile service bands at lower frequencies.

We look forward to seeing the consolidated views of all stakeholders brought together in the RSPG opinion that will be built on the responses to this Consultation.

Yours sincerely,

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## ***ANNEX - O2 Responses to RSPG Questions on secondary trading***

### **General questions**

#### **1) Do you consider secondary trading of rights to use radio spectrum to be beneficial to consumers, businesses and radio users? why/why not?**

O2 believes that spectrum trading is not an end in itself, and that the design of trading systems will influence the degree to which trading will be beneficial to consumers, businesses and radio users. We are therefore pleased to be given this opportunity to comment on a wide range of issues relevant to the design of trading systems, so that the benefits can be realised across Europe and the risks avoided or mitigated.

In particular, we believe there is a need to clarify and align the rights of existing licensees to use spectrum, to retain safeguards to ensure access to spectrum for public services, and to include mechanisms to counter undue interference. Consistency of licence conditions and application of guidelines across Europe will be critical to ensure a level playing field within the market.

O2 believes that a straightforward, workable solution to spectrum trading is needed and we encourage the RSPG to recommend the avoidance of overly complex arrangements. We would also support a recommendation that regulators should regard safety of life services to be of paramount importance in interference disputes.

#### **2) What types of transfer of rights to use radio spectrum (full, leasing, partial etc.) do you consider can be beneficial to consumers, businesses and radio users? why/why not?**

O2 supports the transfer of ownership with no reconfiguration or change of use, as the initial approach to the early realisation of the benefits of spectrum trading. Within each licence class, we support that trading should be applied to every licensee in the licence class.

O2 supports the option of leasing spectrum as well as selling licences in part or whole, whether this is for short term leases or long term leases, for sale and buy back arrangements or for 'timeshare' sales for the whole remainder of a licence term. We also support the continuation of mechanisms that currently exist to facilitate the temporary hire of radio equipment.

#### **3) What rights and associated obligations do you consider should be within the scope of secondary trading of rights to use radio spectrum?**

The introduction of trading presents regulators with an opportunity to reconsider the applicability of non-spectrum related licence conditions. This is especially important when considering the benefits that the trading market would accrue from standard form interchangeable licences. O2 believes that licences without non-spectrum conditions will be more readily tradable than those retaining legacy clauses. Placing specific conditions on certain classes of licences would distort the market, depressing or raising values of certain bands as a consequence of historical regulatory intervention. Such interventions have been made, typically, to ensure efficient spectrum use or to provide adequate access to services for consumers. Once a spectrum trading market is created the aim of efficient spectrum management is obtained by a market mechanism, rather than regulatory micro-management. Further, we can expect that competition in downstream markets will increase with an easing of supply conditions in a market for raw materials (spectrum). With the introduction of trading and especially liberalisation, the current "command economy" supply conditions are relaxed and licensees have the ability to gain cost effective access to raw materials. Consequently, O2 would expect that the introduction of secondary trading would lead to the removal of non-spectrum related conditions, leaving consumer benefit issues to an increasingly competitive downstream market.



The introduction of liberalisation would make legacy licence conditions wholly inappropriate, as licences could switch from mobile to fixed to mobile again (or vice versa) over a number of years. During these transitions mobile or fixed non-spectrum conditions (e.g. rollout) may be dropped because they are incompatible with the new use. The net consequence of such dynamics would be the removal of legacy conditions through market trading. This points to the need to remove such legacy conditions at the beginning of trading so that the initial market conditions do not hinder or distort the introduction of a market mechanism.

O2 supports the concept of concurrent rights and obligations, through the use of overlay licences, since the option of concurrency offers the greatest flexibility when considering leasing arrangements. In addition, and to encourage the enhanced efficiency of spectrum utilisation through spectrum sharing, O2 suggests that where rights and obligations continue concurrently to be rights and obligations of buyer (lessee) and seller (licence holder), the buyer and seller could agree sharing arrangements between themselves, providing that they do not cause interference and providing that the regulator can carry out its enforcement and dispute resolution functions. Thus we believe that leasing could include timeshare arrangements.

**4) Would you want to see secondary trading of rights to use radio spectrum introduced in your country or in the countries of interest to you?**

**a) If yes – why, to what extent? when? frequency bands/services?**

**b) If no – why not, are there other tools that better suit your needs?**

Yes – see our responses to Questions 2, 6 and 7.

**5) What information and electronic communication facilities should be made available to facilitate implementation of secondary trading of rights to use radio spectrum?**

O2 acknowledges that regulators have a role in the provision of information through an open spectrum registry, and we believe that the provision of this information may lead to a commercial opportunity for spectrum brokers to develop interests in running sub-markets, as well as promoting as efficient a market as possible and generating confidence in radio based industries. We consider that the relevant information would best be delivered via an on-line registry, but acknowledge that some parties may prefer to have a choice of delivery mechanism, such as a CD-ROM subscription service.

O2 considers that a stable regulatory environment, a clear picture of current licences and available spectrum, and clarity of future opportunities through planned spectrum releases are all required. The public spectrum registry and national frequency plans will provide much of the information required, but O2 believes that ancillary information regarding plans for adoption of harmonisation decisions, future proposed primary spectrum assignments and anticipated technical or regulatory developments will be needed to inform the market fully. We also believe that regulators should plan to review their spectrum registries in a comprehensive manner during the progressive roll-out of the trading regime, to ensure that the information being provided is accurate and sufficient and is not inhibiting the development of the secondary market in spectrum.

The Framework Directive requires that transactions are made public, but O2 believes that this information should be kept to a minimum. In general, we would not support proposals to provide information regarding intentions to buy or sell, nor details of individual transactions that have taken place.



## Scope of trading – change of use, reconfiguration

**6) Is the possibility to reconfigure rights important? If yes, what kinds of reconfiguration do you consider would benefit consumers, businesses and users of spectrum? (geography, frequency, time, other)**

O2 believes that liberalisation that allows reconfiguration and some change of use will be important, but that change of use can only be introduced after a basic trading regime is fully implemented and specific procedures for insuring against interference have been agreed. We anticipate that the number of constraints needing to be taken into consideration when evaluating change of use will restrict the opportunities for liberalisation to some degree. An *ex ante* regime for change of use would allow wide and detailed consultation with all relevant parties in order to determine whether proposals will impact existing licensed users. In all other simple trades we believe that *ex post* checks will generally be sufficient, with *ex ante* regulation as the exception rather than the rule. We acknowledge that *ex ante* actions must include notification to the regulator, but we believe that all other actions:

- regulatory checks (including engineering checks as well as competition clearance);
  - approval of the trade; and
  - publication of information about the trade;
- can be managed *ex post* for the simplest forms of trading (i.e. change of ownership and/or reconfiguration).

Since we believe that *ex ante* determination would be required in all cases of change of use, we believe that it would be impractical to introduce change of use in the short to medium term, consequently this implies the need to de-couple full liberalisation from basic trading. We expect that the introduction of trading within an *ex post* environment can be achieved more rapidly when it is considered separately from the development of *ex ante* regulations for liberalisation. We also believe that consideration of international harmonisation agreements, national public policy, co-ordination and interference aspects is important in all assessments of the potential for liberalisation, but are particularly important in cases relating to change of use.

O2 believes that the RSPG should recommend the early implementation of basic trading and reconfiguration, allowing reconfiguration in geographic terms or by frequency. Reconfiguration by time equates to leasing and this is discussed in our response to Question 2. In order to maximise trading flexibility, we believe that it would be preferable for licences to be simplified as far as possible, with clear European guidelines on trading regulations in place to manage all market players on an equitable basis.

**7) Is the possibility to use the spectrum in a flexible way important? If yes, what kinds of flexibility do you consider would benefit consumers, business and users of spectrum (service, technical constraints, other)?**

As noted above, O2 supports liberalisation that allows some change of use, but only after a basic trading regime is fully implemented. When some change of use is permitted, we believe that it will be important to ensure equitable opportunities, so that competition in downstream markets is not inhibited. For example, regulators should ensure that non-2G and -3G mobile spectrum licence holders are not permitted to offer 2G or 3G mobile services whilst 2G and 3G mobile spectrum is not itself tradable. This will require a clear definition of such services for the avoidance of doubt amongst both 2G/3G operators and those seeking to trade in spectrum with a view to change of use at a later date.

We also anticipate that the number of constraints needing to be taken into consideration when evaluating change of use, in addition to change of ownership and/or reconfiguration, will restrict the opportunities for liberalisation to some degree. O2 considers that it will be necessary for regulators to publish detailed guidance indicating the circumstances in which consent for change of use might be given, and we believe that this will be needed on a licence class or licence product basis. O2 believes that this guidance would take some time to consider, develop and finalise, and that this process should not hold up the introduction of the more basic forms of trading.



**8) To what extent is the tenure an important issue in assessing secondary trading? (indefinite, rolling, fixed, annual, other)**

The range of existing spectrum licences across Europe have different arrangements for termination and security of tenure, and O2 believes that, on the introduction of trading, all licences should have at least a rolling term with a defined notice period. Whilst setting a standard notice period may be beneficial from a pure economic or administrative perspective in certain bands, O2 believes that some users will require much longer notice periods in order to provide certainty for network investment.

In the case of some licences (including 3G licences) we consider that, in order for the trading market in spectrum to function efficiently, these licences would need to be placed on the same terms as other licences at the end of the fixed term period.

**9) Should the same rules and regulations apply for the whole of the spectrum?**

**a) Is there a need for different rules and regulations for different frequency bands? geographical areas? services? users?**

**b) If you see a need for different rules and regulations in question 8a above, please give examples**

Within each licence class, we support that trading regulations should be applied equitably to every licensee in the licence class. As noted in our response to Question 8, O2 believes that some users will require much longer notice periods in order to provide certainty for network investment.

Historically, specific licence obligations, terms and conditions have been linked to frequency bands. Principally this is because the frequency band and designated type of use are generally interlinked in the current regime. In a trading environment with change of use this linkage is removed. Consequently, rules and regulations would need to be linked to the “use” and not the band. In practical terms O2 expects that “use” will become increasingly diverse and hard for regulators to label (e.g. “what is a 3G service?”). Consequently, we believe that a minimalist approach should be adopted to licence conditions, rules and regulations in order to simplify and encourage trading and avoid market distortions arising from regulation.

## **Competition aspects**

**10) Should there be specific competition rules in relation to implementing secondary trading of rights to use radio spectrum, or is general competition law enough?**

O2 supports in principle the need for new spectrum acquisition rules to assess whether spectrum trades can be expected to result in a substantial lessening of competition. We would expect any such rules to follow competition law principles..

## **The role of the spectrum management authority**

**11) What do you see as the main responsibilities for a spectrum management authority in regards to secondary trading of rights to use radio spectrum?**

O2 considers that, given the volume of spectrum that is available for primary assignment, regulators will indirectly influence trading values and therefore have a highly influential role in regards to secondary trading, which must be addressed responsibly. The impact on spectrum prices of primary assignments will depend on the specific demand and supply conditions in substitutable bands that are open for trading. In order to remove such market distortions, O2 proposes that the introduction of trading in substitutable bands should coincide with the publication of a primary assignment plan, with a time horizon equal to the notice of termination





period for the bands. This plan should be updated at a minimum annually or at such times where the regulator has made substantive changes to its primary release plans. This will mean that spectrum price affecting market information is freely available to current and future market participants. This will be particularly important if a market were to emerge in trading instruments (e.g. futures and options). Open access to price affecting information is a key principle of regulation of these (essentially financial) instruments.

Equally, the application of licence revocation regulations would also influence trading values, only more directly, and this makes it vitally important that regulators should only revoke licences through objectively justifiable decisions and should take account of the value of any licences revoked.

**12) To what extent is spectrum management authority approval of trades a benefit or an impediment to the development of a market for secondary trading of rights to use radio spectrum? Under what circumstances do you consider it would be necessary for a spectrum management authority to refuse a trade?**

O2 supports an approach to the introduction of spectrum trading that aims to impose minimum administrative burdens. O2 supports an approach to trading that involves *ex post* checks, with *ex ante* regulation as the exception rather than the rule. We acknowledge that *ex ante* actions must include notification to the regulator, but we believe that all other actions:

- regulatory checks (including competition clearance);
- approval of the trade; and
- publication of information about the trade;

can be managed *ex post* for the simplest trading modes where there is no change of configuration or change of use.

As noted above, we believe that consideration of international harmonisation agreements, domestic public policy, co-ordination and interference aspects is important in all assessments of the potential for liberalisation, but are particularly important in cases relating to change of use. Of equal importance is the need to consult all affected parties adequately, giving them the opportunity to make representations to the regulator, even though O2 acknowledges that regulators may be under no obligation to do so. A copy of any decision to allow change of use, or at least a summary of the adjudication, should be given to the affected parties, who should also be given the opportunity to make representations to the regulator regarding its proposed decision to grant the requested amendment.

We believe that this process should be maintained in all cases, particularly if the regulator makes challenging commitments to performance targets relating to the time taken to consider proposals for change of use. O2 is concerned that trading should not be permitted to result in an interference free-for-all, and we consider that the proper assessment of applications for change of use should take priority over commitments to performance targets. We believe that the assessment of applications for reconfiguration should be more straightforward to manage, even though full consideration of all relevant factors and consultation with affected parties is still required.

**13) What specific measures could a spectrum management authority take to handle the issues if secondary trading is introduced? (ex ante approval procedures, ex post notification, competition aspects, limit change of use, interference aspects, other)**

See our responses to questions 5, 6 and 10 with regard to the provision of information, notification and competition aspects.

With regard to interference, O2 believes that protection from interference is of critical importance to users of the spectrum. For spectrum licences to be traded (or indeed initially assigned) they must be free from undue interference. The cleanliness of licensed bands and the protection afforded to licensees are both contributors to the overall value that might be placed on the licence at the time of trading. O2 is concerned that any “guidelines” that might be established may be interpreted in ways that dilute the current levels of protection.



In the case of licences held by public safety organisations, there are safety of life implications from interference which must take precedence over intentions to relax regulation.

The levels of interference expected are a critical design parameter for radio systems and O2 suggests that RSPG should recommend that regulators exercise extreme caution when establishing guideline levels of interference. We are particularly concerned that the introduction of liberalisation could increase the number and complexity of interference complaints, and we encourage regulators to develop robust dispute resolution procedures and open, all-inclusive processes, especially where it concerns requests for change of use, prior to the granting of such requests. We consider that problems caused by changes in the definition of emission rights could be exacerbated if insufficient regard is given to the rights of protection currently held by licensees.

Another implication of allowing spectrum trading is the need to audit interference. We acknowledge that regulators (or some other trusted third party) will therefore have a role in the resolution of interference disputes, but O2 believes that this role may be restricted to non-binding arbitration in those cases where no licence breach occurs, and should not in these cases invoke regulatory solutions. This again means that extreme caution must be exercised when establishing guideline levels of interference.

Rules on spectrum “jammers” should be kept tight to provide the assurance of “clean” spectrum.

The need to keep licences free from undue interference will impose stringent requirements on the analysis of any proposals for change of use, since the current spectrum allocation tables have evolved based on numerous detailed studies of sharing and compatibility issues between co-channel, co-located and adjacent radio services.

#### **14) To what extent should the national spectrum management authority actively facilitate secondary trading of rights to use radio spectrum?**

Once a regulatory framework for secondary trading is in place, a range of market institutions may emerge. O2 believes that regulators should not themselves act to establish exchanges, market makers or brokers, since the market can be left to develop of its own accord with trading processes carried out by any private sector organisations that choose to work in this area, such as brokers and spectrum management organisations (SMOs).

The emergence of “market makers” may result in the inefficient use of spectrum as a resource, but may also benefit a market with limited liquidity. O2 is concerned that the desire not to preclude market making activities may be difficult to balance with the introduction of a competition regime for spectrum ownership. O2 believes that regulators should explore the regulatory environments in other trading markets (e.g. energy) in order to set a framework that allows trading to take place as a legitimate business activity concurrently with utilising spectrum on a commercial basis.

Practically, regulators should ensure that appropriate information is made available. O2 acknowledges that regulators have a role in the provision of information through an open spectrum registry, and we believe that the provision of this information may lead to a commercial opportunity for spectrum brokers to develop interests in running sub-markets. As stated previously, certainty over planned primary assignments should also figure as part of this information provision.





## Community aspects

**15) Do you consider that adoption of individual regimes by EU member states will cause problems for consumers, businesses and radio users? If yes, in what ways and to what extent?**

Since the introduction of spectrum trading is a complex and fundamentally far reaching shift for spectrum using industries, we believe that it will be important to many radio industry sectors to develop a clear, consistent and reliable set of trading regulations across Europe. O2 encourages the Commission and the RSPG to continue with their open and considered approach.

**16) Do you consider that the EU should take measures to facilitate the implementation of secondary trading of rights to use radio spectrum? If so, in what areas and to what extent?**

The EU should certainly consider in detail how Community powers might enable a clear, consistent and reliable set of trading regulations to be implemented across Europe, although O2 anticipates that Member States may wish to retain a high level of autonomy in this area.

**17) To what extent is European harmonisation of frequencies an important issue in regards to secondary trading of rights to use radio spectrum?**

O2 believes that ancillary information regarding plans for adoption of harmonisation decisions, future proposed primary spectrum assignments and anticipated technical or regulatory developments will be needed to inform the market fully. We also anticipate that the number of constraints needing to be taken into consideration when evaluating change of use, including international harmonisation agreements, will restrict the opportunities for liberalisation to some degree.

## Related experiences and examples of secondary trading

**18) What are your experiences with the current spectrum management regimes?**

O2 has experienced a number of different primary spectrum assignment mechanisms (beauty contests, auctions and first come first served) and have paid for our spectrum rights through both administrative and value-based mechanisms. The relative merits of each mechanism are dependent on the service provided and utilisation of the spectrum. In some cases, a well designed value-based mechanism may be appropriate, but in other cases it may be more appropriate to have fees that are based on administrative costs and assignment processes that are more simple.

**19) What are your experiences of secondary trading of rights to use radio spectrum?**

We have had some experience in requesting licence transfers, but none have involved secondary trading of rights to use radio spectrum.

**20) Please describe specific scenarios in which you consider that the introduction of secondary trading of rights to use radio spectrum would be beneficial**

We believe that spectrum trading will further the development of an innovative market in the interest of consumers. O2 believes that the potential benefits of spectrum trading must be viewed in a long term context, since long term investments have been made by many radio industry sectors. A stable regulatory environment, a clear picture of current licences and available spectrum, and clarity of future opportunities through planned spectrum releases are all required. O2 views spectrum trading as an important element of the transition to an improved spectrum allocation process that will bring benefits to many sectors and in many different scenarios, and we therefore believe that care should be taken by regulators to develop practical trading regulations.