

Consultation title: Providing Spectrum Information

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CONFIDENTIALITY

What do you want Ofcom to keep confidential? Nothing

DECLARATION

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Name : John Pahl

Date: 2nd November 2009

Background to Transfinite

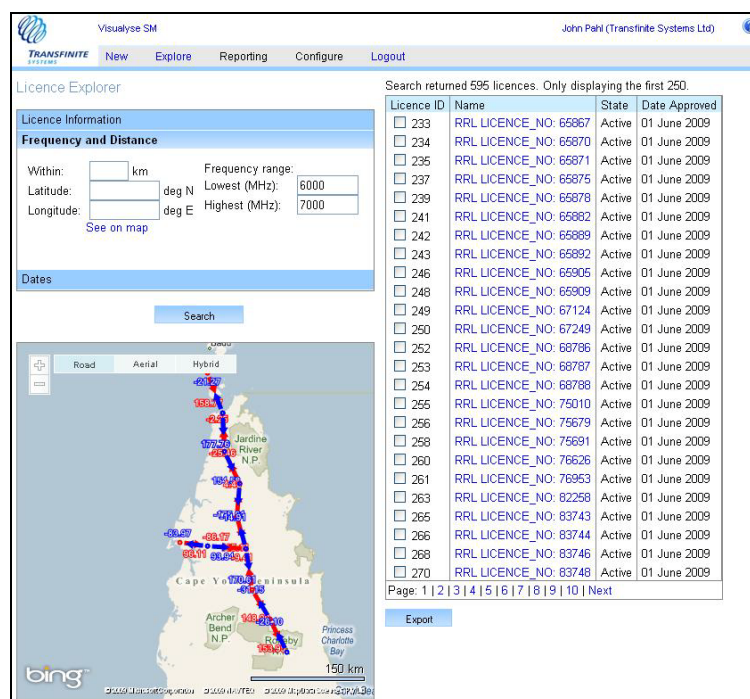
Transfinite is an independent UK company, with an excellent track record of consultancy support, study work and software development. We specialise in products and services to analyse compatibility between radiocommunications systems and their use of the radio spectrum. Our tools have a particular emphasis on interference analysis, spectrum management and frequency co-ordination. Our study work has encompassed a wide range of communications systems including both terrestrial and satellite services.

Recently we were involved in the auction of spectrum in the 10 – 40 GHz bands and were successful, gaining a licence in the 28 GHz band. We intend to operate as a band manager providing access to our spectrum via a web based software solution called Visualyse Spectrum Manager (SM).

Visualyse SM provides all the necessary features to support issuing of licences including:

- Licence application
- Licence processing
- Licence search and display
- Technical analysis
- Management and reporting
- Engineering

Visualyse SM can offer users with sufficient access rights the ability to search for licenses using a standard web browser. The result of searches can be displayed with GIS and spectrum usage information, as in the screen shot below which uses licence data extracted from the ACMA RRL CD-ROM.



General Comments

Transfinite welcomes the publication by Ofcom of the consultation on providing spectrum information and the opportunity to give our views of this issue. We support the release of assignment data and suggest that the approach used by the Australian Communications and Media Authority (ACMA) to make available their assignment data would be a good model for the UK.

Question 1: Is there information that we are planning to release that would be covered under one of these exceptions and if so what is the supporting evidence?

We feel that the majority of assignments managed by Ofcom can be released and are not covered by the exceptions. This argument is based upon the general public benefit of availability of information about assignment use and the lack of evidence of harm from releasing such information in countries such as Australia.

The ACMA make available the majority of assignments, in particular commercial assignments, readily available either through their web site or CD-ROM. The release of this Radiocommunications Record of Licensing (RRL) data has improved spectrum efficiency and reduced cost as it permits spectrum management tasks to be undertaken by external parties with suitable authorisation.

We are not aware of evidence that this release has led to issues that have been suggested as topics of concern.

In addition most use of radio systems could be identified without access to the database as antennas are often visible and the emissions could be detected with suitable hardware such as spectrum analysers.

Note that assignments from organisations such as the Australian Department of Defence are kept on a separate database and hence are not released as part of the RRL.

Question 2: Is there information that we are planning to release that would not be in the public interest to do so looking at each exception individually and then in aggregate and if so what is the supporting evidence?

As noted above we feel that release of the information suggested would be in the public interest leading to improved spectrum efficiency and transparency in spectrum usage.

Question 3: We would welcome comments and views on the information we already make available, in particular areas where stakeholders believe this could be improved.

The information could be improved if it had the full assignment data available either online or on CD-ROM in a similar level of detail to the ACMA RRL.

Question 4: We are interested in the views of stakeholders on what information in addition to that contained in Annex 8 they think would help to ensure optimal use of the electro-magnetic spectrum, and on the impact the disclosure of this information might have on licence holders.

The information provided only describes the transmitters, but to get a full idea of spectrum usage it is also necessary to have access to receiver characteristics. For example a bi-directional point to point (PtP) fixed link consists of two transmitters and two receivers, and to ensure compatibility it is necessary to check:

- Interference from existing systems into the new application
- Interference from the new application into existing systems

The ACMA RRL database provides sufficient information to build a complete definition of the link by including receiver information as well. This would have a similar format to Annex 8, in particular:

- Frequency
- Receive area / station location(s)
- Channel bandwidth
- Associated transmit station
- Equipment code
- + all the antenna information in the 3rd column.

In addition there would be protection information such as:

- Interference threshold level (e.g. in dBW or dBm)
- Associated percentage of time

If threshold are given they should be the ones used by Ofcom or the relevant planning agent during the assignment process. Note that there could be more than one (e.g. short term and long term).

While the licence start/end date is not part of the EIR it is considered very useful to determine the potential impact of the assignment to cause / suffer interference.

The parameters in Annex 9 include codes for equipment and antenna: clear definitions of what these mean would be required with the ability to identify gain patterns, spectrum masks etc.

Note that information should be available in a number of ways including:

- Web tool with GIS data overlay (e.g. Google or Bing! Maps)
- Web tool with download of assignment data in common format (e.g. XML)
- Offline access to complete database (e.g. DVD)

It could be that the complete database would only be made available to interested parties that meet suitable criteria.

Question 5: We are interested in views regarding the areas where we should look towards focusing future research and studies on, and the benefits this will bring to industry, citizens and consumer? What information could we provide to encourage innovation and research?

Receiver Characteristics

It would be useful to have additional information about receiver characteristics. Compatibility studies often involve modelling radio systems operating in adjacent bands and if detailed information is not available pessimistic assumptions and larger guard bands could be required.

While transmit spectrum masks are often available (e.g. as ETSI standards as part of the equipment type approval process), receiver characteristics are rarely given.

Database Quality

The value of a database of assignments is strongly related to the quality of data. There can be in particular two problems:

- Low resolution of positional information, in particular for old assignments that were only given in six digit NGR format that are accurate to within 100m.
- Out of date information, whereby radiocommunication systems that are no longer active continue to remain in the database.

A program to ensure there is high level of confidence in the data with all positions accurate to (say) 8 digit NGR i.e. 10m resolution would be highly beneficial. That degree of accuracy is more readily available today with modern GPS equipment and access to online mapping tools.

Automated online tools

With modern technology such as Visualyse Spectrum Manager it would be possible to automate licensing of some spectrum products, in particular fixed links. This could be introduced as a service in traditional licensed bands or within the light licensed bands to facilitate deployment of links that meet required quality levels.

In addition these tools could provide interactive access to assignment data.

Monitoring and enforcement

In order to ensure the database can be relied upon it is necessary for unlicensed transmissions to be detected and rapidly closed down. There is likely to be additional requirements for spectrum monitoring from band managers, particularly relating to identification of the potential for interference from unlicensed or undocumented transmitters.

Question 6: Would stakeholders find information on the price paid for a traded spectrum licence useful and believe that we should make the provision of this mandatory?

There would be significant benefits in making available the price paid for traded spectrum as a way of increasing transparency in the spectrum market and providing a methodology to generate a book value for spectrum assets.

However there can be difficulties in some form of trades in identifying what part of the price was due to spectrum alone and how much was covered by an external contract. For example a spectrum licence owner could make a concurrent total spectrum trade for no initial charge but actual access to spectrum managed under a separate contract. This would give a misleading indication of spectrum value.

Ofcom has separately proposed alternative mechanisms to provide access to spectrum, such as spectrum leasing and should this be introduced (which Transfinite supports) there would be lesser requirement for this sort of trade. It is assumed that spectrum leases would not be covered by this requirement to provide information on spectrum trades. However a long term spectrum lease could have similar characteristics to a spectrum trade.

Non concurrent trades are likely to be clearer in what has been traded and therefore could be a better basis of making mandatory pricing information.

It could be that it is still early days in the development of a spectrum market, with low volumes and lack of liquidity. At present it might not be clear what would be the most appropriate measure to record and what form it should be reported.

Therefore it could be better for Ofcom to take no action at present but monitor the situation and determine separately what would be the preferred approach to tracking spectrum price data.

It should be noted that this is not a requirement under the Environmental Information Regulations and would not be required to spectrum management purposes either. In many cases access to spectrum could be via a range of contractual basis some of which might not be trades but leases (as proposed by Ofcom) which could include other factors (such as service provided).

There is also an ongoing project to review spectrum pricing within Ofcom, and there is a danger in the emerging spectrum market prices being defacto set by Ofcom itself via auction reserve prices and/or AIP.

Question 7: If yes, what would be the most appropriate way for us to collect these data, for example asking for the specific value, using a check-box system? In what format should information be provided, for example displayed in aggregate format?

If it is clear what is being traded, for example not a concurrent trade, then the more accurate the information the better. An example would be Land Registry records that give precise pricing data.

Question 8: Do you have any views about the regulatory burden that this would place on the parties involved in a trade, for example would the cost of providing information be prohibitive? Do you have any concerns about the confidentiality of this data?

If this information were required for all transactions between spectrum owners this could result in a high administrative overhead. If it was restricted to non current transfers the limited number of such trades and higher value per transaction would not provide a significant overhead.

While there could be some concerns about confidentiality, there could also be wider general benefits.

Question 9: We are interested in comments on whether the publication of spectrum usage data would be beneficial to stakeholders, what should be included and what format this should take.

It can be difficult to use monitoring data to determine usage as a number of services can operate with very low field strengths. In particular point to point fixed links and satellite service tend not be detectable without highly directional antennas. Furthermore unused spectrum could be fallow for a number of reasons, and if the database is accurate and up-to-date it would give an accurate description of the degree to which spectrum is being utilised.

Use of detection and enforcement as a mechanism to ensure the integrity and accuracy of the assignment database would be a more effective approach to identification of spectrum usage information.

There could be significant additional requirements for access to spectrum monitoring information by private band managers to assist in the identification of the potential for interference from unlicensed or undocumented transmitters. This should be handled separately from general information made available to all stakeholders.

Question 10: We would welcome any further views on whether there are other areas of non-price information that could be published to the benefit of citizens or consumers.

It could be useful to provide access to a web tool that identifies graphically the areas near transmitters within which the health and safety limits are met / exceeded.

Question 11: We would also be interested to understand from stakeholders the impact of disclosure of any of the information discussed.

No further comments to those given above
